



Cambridge Risk Framework

Profile of a Macro-Catastrophe Threat Type

Geopolitical Conflict

Centre for
Risk Studies

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Gary Bowman, Andrew Coburn, Simon Ruffle**



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Joshua L Wallace¹, Richard G Hartley², Gary Bowman^{3*}, Andrew Coburn³, Simon Ruffle³

August 2013

Abstract

Armed conflicts between states litter the records of history. Wars have been fought for a multitude of reasons, however these can be fractured into main three strands: political ambitions, economic motives and ideological differences. This monograph summarises each of these drivers, and assesses their importance in the wider context of the balance of power within the international system. Through consideration of historical records, a magnitude scale is derived, as well as a geographical conflict map.

The monograph concludes with a hypothetical scenario – a 1 in 100 (or magnitude 3) conflict between China and Japan over disputed islands in the East China Sea. The conflict extends for 68 days, with both sides exchanging fire with physical damage to both military and civilian infrastructure. Economic interdependencies and the threat of global escalation contains the conflict as diplomatic channels are re-opened.

Keywords:

Conventional War, Conflict, China, Japan, United States, Middle East

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'...the most persistent sound which reverberates through men's history is the beating of war drums.'

– Arthur Koestler

1 Monograph Summary

Armed conflicts between states litter the records of history. Wars have been fought for a multitude of reasons, however these can be fractured into main three strands: political ambitions, economic motives and ideological differences. This monograph summarises each of these drivers, and assesses their importance in the wider context of the balance of power within the international system. At a high level we can identify three potential balances of power within the international system: multipolarity, unipolarity and bipolarity- each having significant implications for the likelihood and development of conflict.

War, by its very nature, causes huge disruption and has been critical to shaping the world that we live in today. Its impact spans beyond casualties, carrying significant economic, social and political consequences. The scale of the conflict largely determines the extent of these consequences. This monograph attempts to capture and classify the varying degrees of conflict in a Magnitude scale presented in Section 5. The Magnitude Scale assesses conflicts against the variable of the relative power of the belligerents involved, however there are a number of variables which are not included, notably: the length of the conflict, and the degree of integration into the global economy of the belligerents.

This monograph will provide a summary of the causes and consequences of geopolitical conflict as well as a historical overview, including some detailed case studies. It will also present a magnitude scale for war, a categorisation for understanding economic impact and a geographical map of current and potential conflicts, noting their likelihood and possible scale. Contained in the monograph is also a hypothetical scenario, a 1in100 (or magnitude 3) conflict between China and Japan over disputed islands in the East China Sea. Finally, a detailed bibliography of important references and further reading precedes an appendix containing further historical examples.

2 Definition

Conventional conflict is a contested incompatibility, which concerns government and/or territory where the use of armed forces between two parties, of which one is a government of a state. It can be categorised along two further dimensions, fatalities and actor. Fatalities: (1) minor armed conflict (0-25 deaths), (2) Intermediate armed conflict (25-1000 deaths) and (3) War (1000+ deaths). Actor: (1) Extrasystemic, (2) Interstate, (3) Internal and (4) Internationalized. This monograph focuses primarily on inter-state conflict.

3 Summary of the Threat

During a period of 'Pax Americana', the world has experienced a relative degree of peace. Comparatively, there have been few instances of interstate conflict in the past decade, and no major power war has erupted since 1939, constituting the longest era of major power peace during the past five centuries. This can be largely attributed to the spread of democratisation and increased connectivity spurred by globalisation. However, in a unipolar world we have still seen a number of significant wars, and assessing this period of unipolarity against past periods of multipolarity and bipolarity helps elucidate the patterns of warfare in each phase. This is particularly relevant as the world enters a period marked by the rise of new powers, led by China, who will challenge the hegemony the U.S has enjoyed over the last half a century.

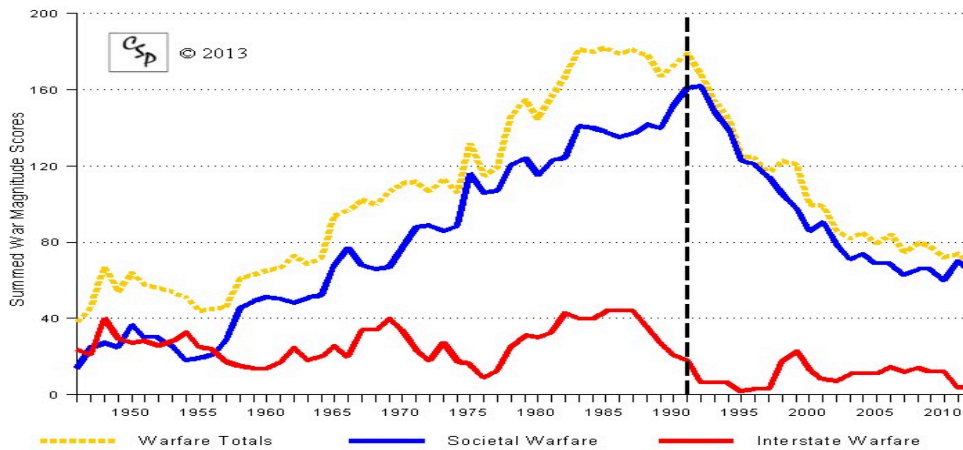


Figure 1: Global Trends in Armed Conflict between 1946-2012¹

3.1 Causes

The causes of war are not only complex - both multi-causal and multi-faceted - but they change over time. These changes over time are best understood within a framework of the distribution of power within the international system.

3.1.1 Balance of Power

The distribution of power within the international system at any point in time plays an important role in determining the patterns and probability of warfare. The distribution of power is best expressed as a degree of polarity (the concentration of power within the international system).

Bipolarity

Bipolarity is the distribution of power in which two states are roughly symmetrical in their economic, military and cultural influence. The Cold War is a historical period with one of the highest degrees of recorded bipolarity. Bipolarity has two major components: power distribution and alliance clustering. The two components have ‘opposite’ effects on warfare in an international system - while bipolarity minimizes the magnitude of those wars that do emerge; alliance bipolarity increases the likelihood of warfare itself.

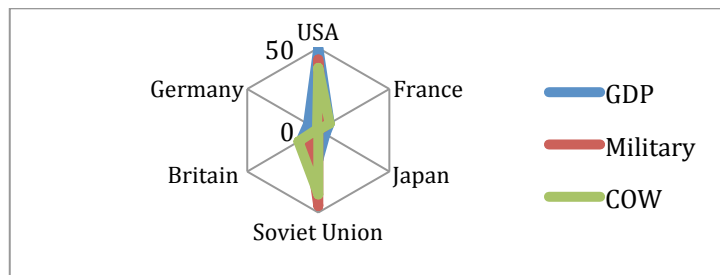


Figure 2: Distribution (%) of GDP, Military Outlays and COW Index (Correlates of War CINC Index) among the major powers in a bipolar world (1950)

¹ <http://www.systemicpeace.org/conflict.htm>

Bipolarity increases the probability of warfare because it removes two important conflict-controlling agents from the international system: intermediary relationships and crosscutting cleavages (both of which exist in a multipolar world).

During a bipolar period an increase is likely to be seen specifically in offshore balancing and proxy wars as the superpowers utilise their alliances in an attempt to mitigate the threat of the opposing superpower. However, because of the symmetrical distribution of power both sides treat the other with great care, and manage conflicts so as to prevent their escalation- ultimately the superpowers reign in the behaviour of their allies.

Modelling of the relationship between polarity and international crises has shown that bipolarity increases the average number of conflicts by 51.4% per year when moving from bipolarity to unipolarity (from 3.56 to 5.39 crises) and by 29.9% (5.39 to 7.00) from bipolarity to polycentrism.²

Unipolarity

Unipolarity is defined as a system in which one state has significantly more capabilities than any other. By extension, the Unipole's security cannot be threatened by others. A unipolar system renders the possibility of world war less likely, as no state, and no (plausible) coalition can threaten the security of the superpower, and thus war is no longer a viable channel to challenge the superpower. Notable examples of unipolar powers include the Persian Empire from 539 BCE to 449 BCE and the British Empire from the end of the Napoleonic Wars (1815) to the beginning of World War 1 (1914). However, while the superpower may have the ability to intervene and limit other wars, its decision to do so will depend on its values and outlooks, alongside the behaviour of other actors in the international system.

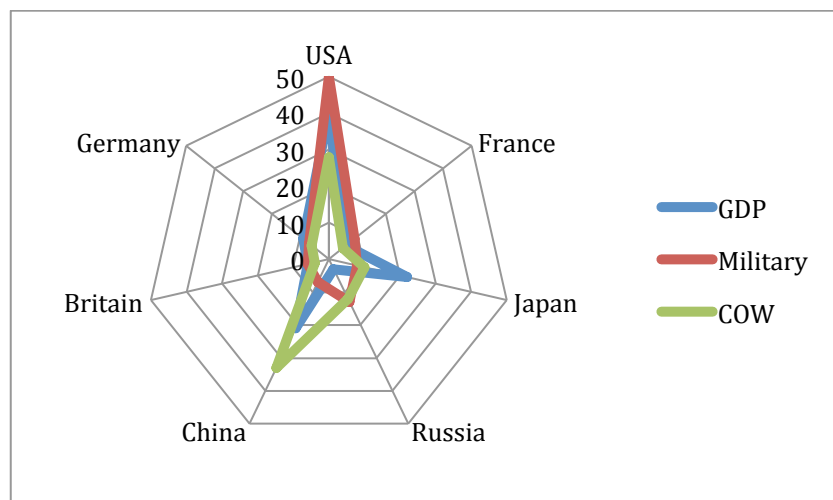


Figure 3: Distribution (%) of GDP, Military Outlays and COW Index among the major powers in a unipolar world (1950)

Against the backdrop of polarity there are a number of “driving” as well as “auxiliary” factors that contribute to conflict. While interrelated, driving factors can be identified as 1) economic 2) political and 3) ideological and auxiliary factors as 1) spatial proximity and 2) economic waves.

² Frank Wayman (1984) , “Bipolarity and War: The role of capability concentration and alliance patterns among major powers, 1816-1965”, *Journal of Peace Research* 21(1), pp.61-78

3.1.2 Driving Factors

Competition for Resources and Economic Growth

Thucydides' observed that prosperity caused the Athenians to seek to expand their influence amongst the Peloponnese while Lenin anticipated a contest among the most developed states for control over world markets. Such conflicts often revolve around ascertaining natural resources due to their critical role in economic growth. Fourteen of the twenty major wars between 1878 and 1918 had significant economic causes- often related to resources. The rise of industrialism led to competition for raw materials between nation-states. When Chile fought against Bolivia and Peru for the control of guano mineral deposits its victory raised the value of its treasury by 900%. The Algerian War of Independence (1954-1962), the Six Day War (1967), the Chaco War (1932-1935) and Saddam Hussein's invasion of Kuwait (1990) all had important resource dimensions.³

Conflict between two states has been shown to be more likely when at least one country has natural resources (disproportionately higher when oil is involved), and when these natural resources are closer to the border. In instances where both countries have natural resources the chances of conflict are raised when the resources are allocated asymmetrically vis-à-vis the border. This has been shown to be especially true of oil (because of its value). This in part can be explained by the elasticity in demand for the resource in question - inelastic resources have been shown to be correlated with increased war incentives.

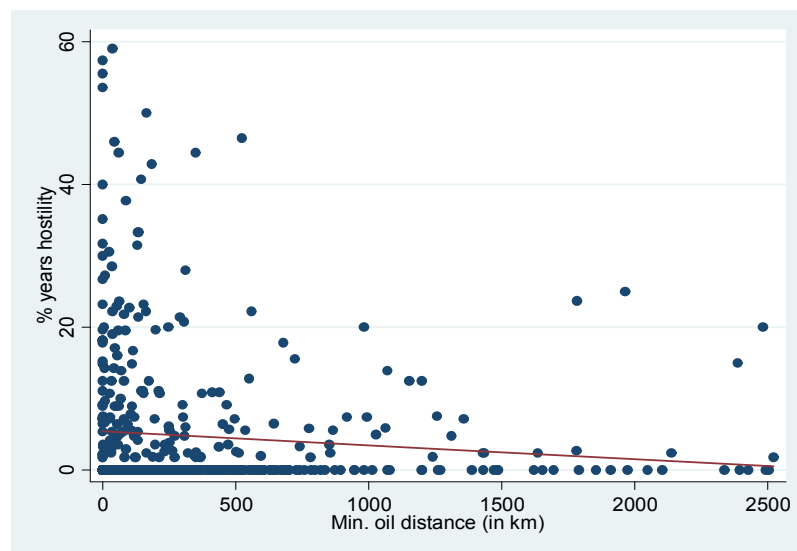


Figure 5: Unconditional correlation between minimum oil distance and hostility⁴

Political

Shakespeare said of Statesmen, "be it thy course to busy giddy minds/with foreign quarrels". This has come to be known as the 'rally around the flag' effect, where popular support is generated for a regime as a nation unites against the 'enemy'. Notable examples include Otto von Bismarck's foreign

³ Daron Acemoglu, Mikhail Golosov, Aleh Tsyvinski & Pierre Yared (2012), "A Dynamic Theory of Resource Wars", *Quarterly Journal of Economics* 127(1), pp. 283-331

⁴ Francesco Caselli (2012), "The Geography of Inter-State Resource Wars", *Society for Economic Dynamics 2012 Meeting Papers* 1174, pp.1-39

policy during the Franco-Prussian war, which gave him the support to push through a unified Germany and the capture of the Falklands under the Thatcher administration. Between 1946-76 it is estimated that U.S. Presidents have deployed 214 military units abroad for political purposes, often with the aim of bolstering domestic support. Economic context, the position in an electoral cycle and relative power abroad are likely to affect the decision to resort to war to generate political kudos.

Ideology, Culture & Religion

Ideology arguably underpinned the struggle between the U.S. and the U.S.S.R. Ideology as a fluid concept can be used by regimes to justify their actions before and *ex post facto*. It also has a particularly important role in less democratic countries, where because they often have less structural legitimacy they rely on ideology- e.g. People's Republic of China. Ideology is also most often activated when institutional constraints are lifted or monetarily suspended leaving a political space for exploitation. Framed this way, critical junctures (e.g. political revolutions) involving the momentary suspension of institutional constraints offer an opportunity for ideologies to be nurtured, sustained and entrenched which can later be defended through positive feedback loops.

Samuel Huntington famously wrote that in emerging from the Cold War the world was about to enter a period characterized by a 'clash of civilizations'. While empirical results have been mixed, evidence suggests 'fault lines' between civilizations are more likely to experience inter-state conflict.⁵ A corollary is religion, in the 16th and 17th century Europe saw a spate of what have been labelled the "wars of religion". A more recent example is the Lebanese civil war of 1970. While religion may be an explanatory variable in isolation, tests have revealed that religious-secular dyads do not experience greater risks of conflict (in comparison to other dyads) it does however alter the dynamics of warfare. Religious-secular dyads are more likely to experience more severe conflicts than other dyad types. This assessment is corroborated by the work of Horowitz who identifies religion as playing a critical role in the length of the Crusades.⁶

Interrogated systematically, certain ideologies are more conducive to warfare than others. Authoritarian regimes that have looked to create world utopias through large scale social engineering such as the National Socialism in Germany and Italian Fascism pose a threat to peace. In particular, such expansionary nationalist ideologies, that propagate a world view, see war as a necessary means of putting vision into practice. Historically, these types of ideologies have emerged in economic and social configurations where classes have formed alliances to defend against new threats. Thus typically, ideologies of this kind emerge in response to an identified – real or constructed – internal and/or external threat. For example, an internal and external threat labelled the 'Jewish Question' informed the ideology of German National Socialism; more recently, Iran post revolution under Ayatollah Khomeini is driven by a Shia radicalism that seeks to implement a religious theocracy by driving out liberal and secular elements. Naturally, interstate war becomes more probable when ideologies are built on external threats and regimes have the resources to prosecute war. The idea of 'Socialism in One Country' limited Russian Communism in the 1920s to an internal struggle; whereas the competing and never realised ideology that was propagated by Leon Trotsky – World Communism or International Socialism – would have posed a greater threat to world peace. Conversely, in democratic regimes, ideology is less pronounced as the single totalising viewpoints are neutralised through majoritarian electoral regimes and institutional mechanisms that preserve and protect the democratic process.

⁵ Samuel Huntington (1973), "The Clash of Civilizations?", *Foreign Affairs* 72 (3), pp. 22-48

⁶ Michael Horowitz (2009), "Long Time Going: Religion and the duration of crusading", *International Security* 34 (2), pp. 162-193

Degree of Polarity \ Driver	Economic	Political	Ideological
Multipolar World ('Concert of Europe': 1815-1915)	Frequency: High Nature: Imperial/Colonial Magnitude: Predominately Mag 1 -3 Examples: Chaco War (1) Opium Wars (2-3) Russo-Japanese War (3)	Frequency: High Nature: Imperial/Colonial Magnitude: Predominately Mag 3-4 Examples: Italo-Turkish War (3) Crimean War (4)	Frequency: Low Nature: Short Magnitude: Predominately Mag 1 Example: Roman Republic (1)
Bipolar World (Cold War)	Frequency: Low Nature: Short Magnitude: Predominately Mag 1-2 Examples: The "Soccer War" (1) Sinai War (2)	Frequency: Low Nature: Short Magnitude: Predominately Mag 2-3 Examples: Bangladesh Liberation War (2) Falkland's War (3)	Frequency: High Nature: Protracted Magnitude: Predominately Mag1-3 Examples: Angola War of Independence (1-2) U.S. invasion of Vietnam (3)
Unipolar World (Pax Americana 1991-2006)	Frequency: Low Nature: Short Magnitude: Predominately Mag 2 Examples: Iraqi invasion of Kuwait (2)	Frequency: Low Nature: Short Magnitude: Predominately Mag 2-3 Examples: Russian invasion of Georgia (2) U.S. invasion of Afghanistan (3)	Frequency: Medium Nature: Asymmetric Magnitude: Predominantly Mag 2-3 Example: U.S. invasion of Iraq (2-3)

Figure 6: Drivers of conflict in two eras of polarity (the Cold War & Pax Americana)⁷

3.1.3 Auxiliary Factors

Spatial Proximity

Another influential dimension when looking at the reason for war is proximity of countries. In a study of major states from 1815-1976, Wallensteen (1981) found that contiguity is a significant source of conflict - 93% of the contiguous state pairs have at least one militarized confrontation and 64% have at least one war. This relationship is born out of cost (of going to war at distances), willingness (motivation), technological limitations (e.g. range of nuclear rockets) and opportunity. Therefore, most wars are between states that are territorially contiguous or separated by 150 miles of sea.⁸ More

⁷ See Section 5 for Magnitude Scale

⁸ Peter Wallensteen (1981), "Incompatibility, Confrontation and War: Four models and three historical systems, 1816-1976", *Journal of Peace Research* 18 (1), pp. 57-90

isolated states (e.g. China) have a lower probability of interstate war, and states with high proximity to other many states (e.g. Austria) have a much higher probability of warfare. Recently, this relationship can be said to be problematized by the dramatic reduction in the costs of warfare through technological innovation which have contracted space-time, and made it easier for states to prosecute warfare at longer distances (e.g. US engagement in Iraq). In the future, as technology improves and costs reduce, states will be able to reach further and spatial proximity will become less significant as a limiting factor.

Kondratieff curve

From a world-systemic perspective, there are also strong arguments that long economic waves (Kondratieff waves) are synchronized with war episodes. Distilled, the theory indicates an escalatory war upswing recurs roughly every 50 years. Long run economic upswings theoretically increase the probability of war through various mechanisms: 1) enhanced competition for markets, territory, strategic resources, thus increasing the chances of war; 2) Long term prosperity also supports the diversion of government expenditure into arms and military technology, as well as guaranteeing the prosecution of war over an extended period; 3) From a psychological viewpoint, prosperity also serves to create an expansionary mood which could facilitate warfare.

The cyclical and periodic nature of war is explained by: (1) the alternation of different generations of populations, each lasting roughly 25 years and reacting against the previous generation (see Richardson, 1960)⁹; (2) the duration of time required to recover financially, psychologically, and politically from a previous war and prepare for the next; 3) the average 40-60 year period of dominance of a political party in democratic countries.

3.1.4 An era of Pax Americana

Fukuyama writing in at the end of the 90s observed that while the 20th century had seen the world descend into a 'paroxysm of ideological violence' it was closing with an unabashed victory for economic and political liberalism; we were in fact at the 'end of history'.¹⁰ While Fukuyama may have been premature in his assessment, the emergence of the U.S. as the dominant superpower in the aftermath of the Cold War undoubtedly ushered in an unparalleled wave of globalisation. Of which, three related tenets have been central in shaping the contours of conflict a) the spread of democracy b) economic interdependence and c) International institutions

Spread of democracy and democratic peace theory

The spread of democracy and democratic principles has profound implications for the onset of conflict. Within Political Science it is argued that the closest there is to an uncontested truth is that two democracies never go to a war with one another. From a normative perspective liberal capitalism sponsors a culture of contracts in which individuals and nation-states prefer bargaining to coercion or conflict.¹¹

⁹ Lewis F. Richardson, *Statistics of Deadly Quarrels* (Chicago: Quadrangle Books, 1960)

¹⁰ Francis Fukuyama (1989), 'The End of History?', *The National Interest*, pp. 3-18

¹¹ There are a number of exceptions to the democratic peace theory- the Spanish-American civil war, the continuation of War between Finland and the Allies after WW2 and the Kargil war between India and Pakistan. It has been argued that the presence of contract-intensive democracies is the critical variable with the most explanatory power

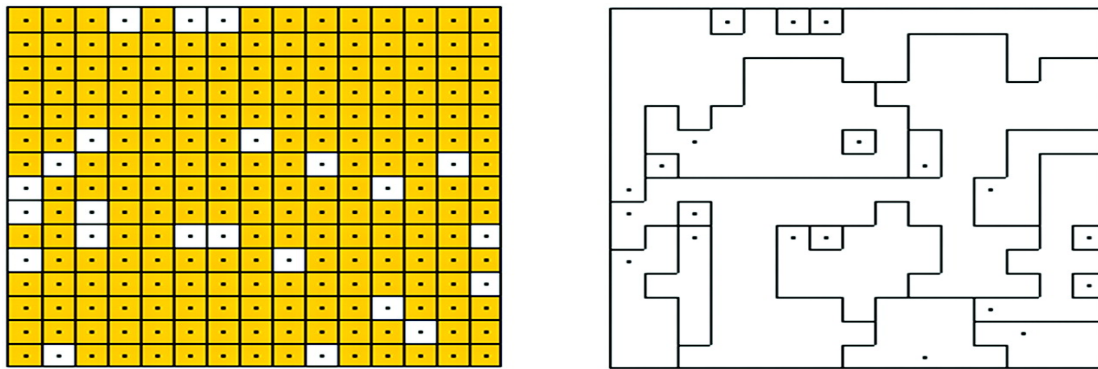


Figure 6: Two snapshots of a sample run that starts with a mere 10% of conditional co-operators. By time period 1,000, the entire system has reached a state “perpetual peace”, entirely dominated by mutually cooperating democracies.¹²

However, it should not necessarily be assumed that politics will become more cooperative as nations increasingly become democratic, as both difference and similarity should be seen as dynamic concepts. Democracies may unite when there are a higher number of autocracies based on differences, but increased heterogeneity in the face of dissolving autocracies is likely to make differences between democracies more salient. Modelling of this phenomenon has shown that the probability of conflict in democratic dyads grows condition on systemic democracy levels while the probability of conflict in mixed dyads declines as the systems moves towards an equilibrium between democracies and autocracies.

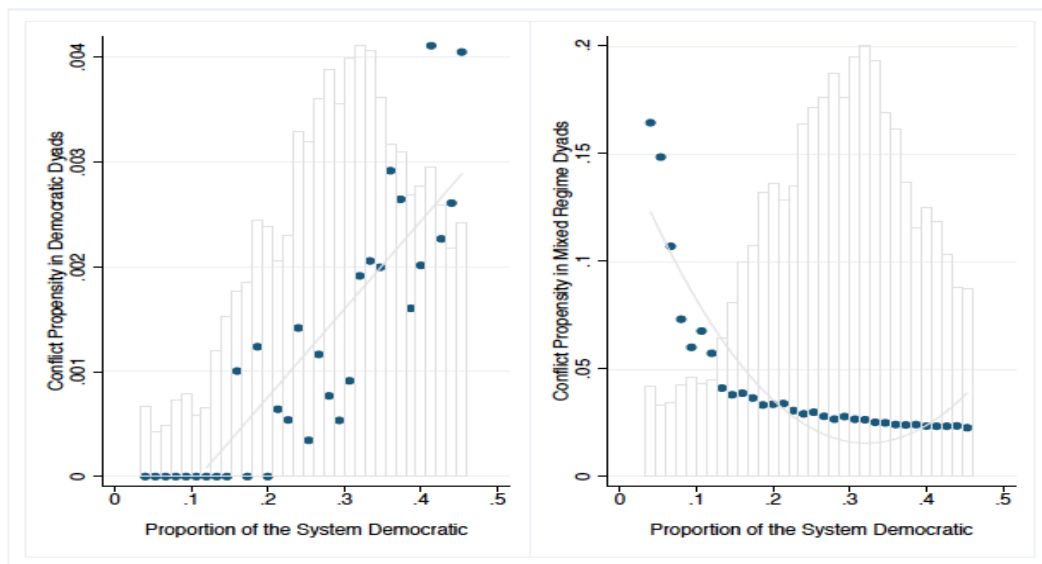


Figure 7: Predicted probability of conflict for observed levels of systemic democracy¹³

¹² Lars-Erik Cederman (2002), “Endogenizing geopolitical boundaries with agent-based modelling”, *Proceeding of the National Academy of Sciences of the United States of America* 99 (3), pp. 7296-7303

¹³ Eric Gartzke and Alex Weisiger (2013), “Permanent Friends? Dynamic difference and the democratic peace”, *International Studies Quarterly* 57 (1), pp. 171-85

Economic development and interdependence

A central feature of the democratic peace theory is that democratization has ushered in an era of greater economic development which reduces conflict propensity as; a) wealthy nations are less likely to go to war and b) increased economic interdependence means conflict will be avoided due to potential disruption to trade. Economic development has been shown to have a non-linear effect on conflict, as development reduces the utility of conquest.

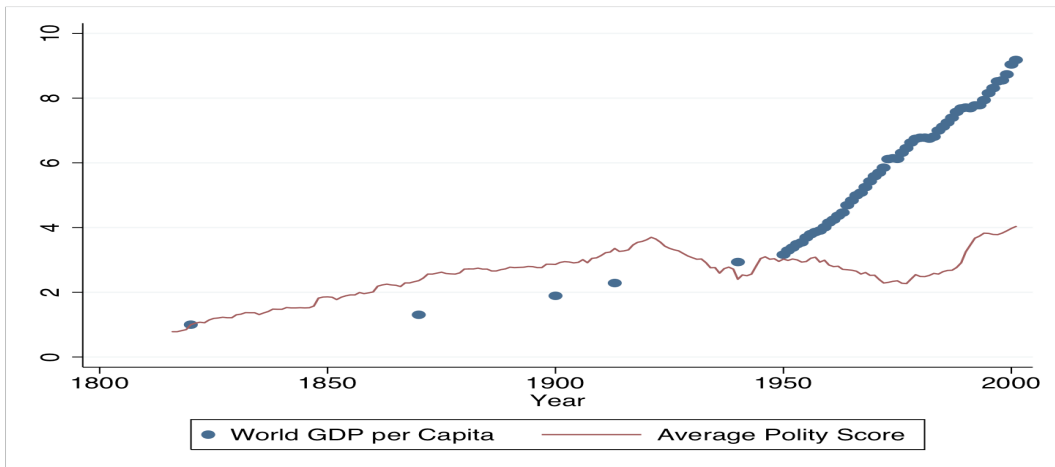


Figure 8: Global Historical Trends in Development and Democracy¹⁴

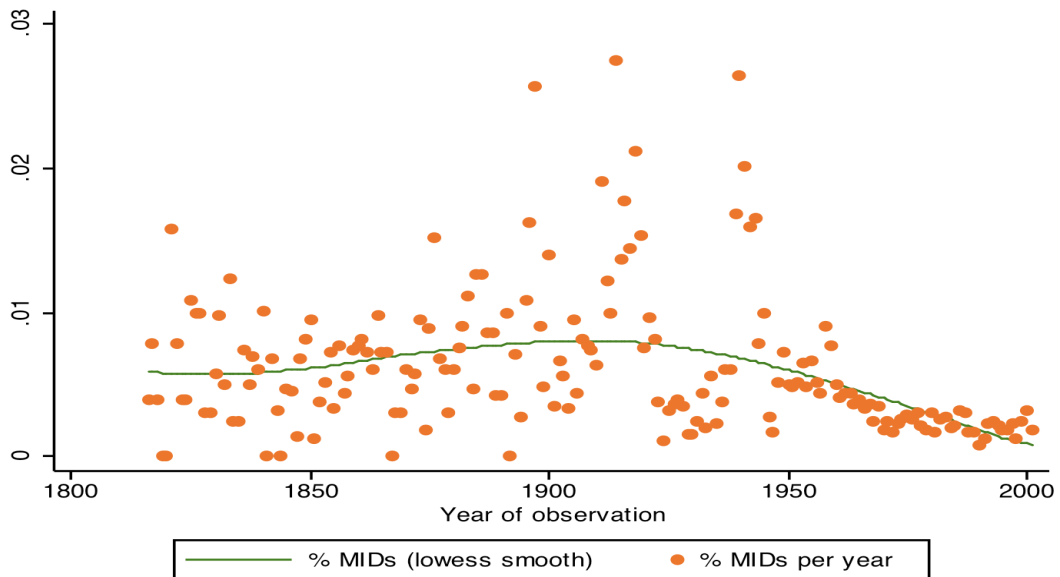


Figure 9: Global historical trends in militarized dispute probability¹⁵

¹⁴ Eric Gartzke and Alex Weisiger (2013), "Development, Democracy, and Difference as Determinants of the Systemic Liberal Peace", *International Studies Quarterly* (Forthcoming)

¹⁵ Eric Gartzke and Alex Weisiger (2013), "Development, Democracy, and Difference as Determinants of the Systemic Liberal

Warfare clearly disrupts trade and thus this acts as a deterrent for prosecuting war. However, the nature of the trading relationship between two countries bears upon the likelihood of conflict. Rises in agriculture-fishery imports and energy imports have been shown to reduce the probability of conflict initiation, while rises in energy exports and manufacturing exports increase the probability. For example, when country A's agriculture-fishery import from B rises by one standard deviation (\$187 million) above the mean, country A is 22% less likely to initiate conflict against country B. Whereas when country A's energy export to country B rises by \$439 million, country A is 7% more likely to initiate a conflict.¹⁶ Ultimately countries are less likely initiate conflict when they are likely to lead to losses in their trade. Furthermore, greater bilateral trade interdependence appears to bring about considerably larger peace promotion effects for neighbouring countries, whereas greater global trade openness has a more positive effect on peace for distant countries relative to neighbouring ones.

International Institutions

International Institutions play a key theoretical linkage in democratic peace theory- encouraging peace through socialization, enforcing credible commitments and dispute settlement. Empirical results for the effect of International Institutions have been mixed, however, international institutions composed of democracies have been shown to have a robust relationship to peace promotion.

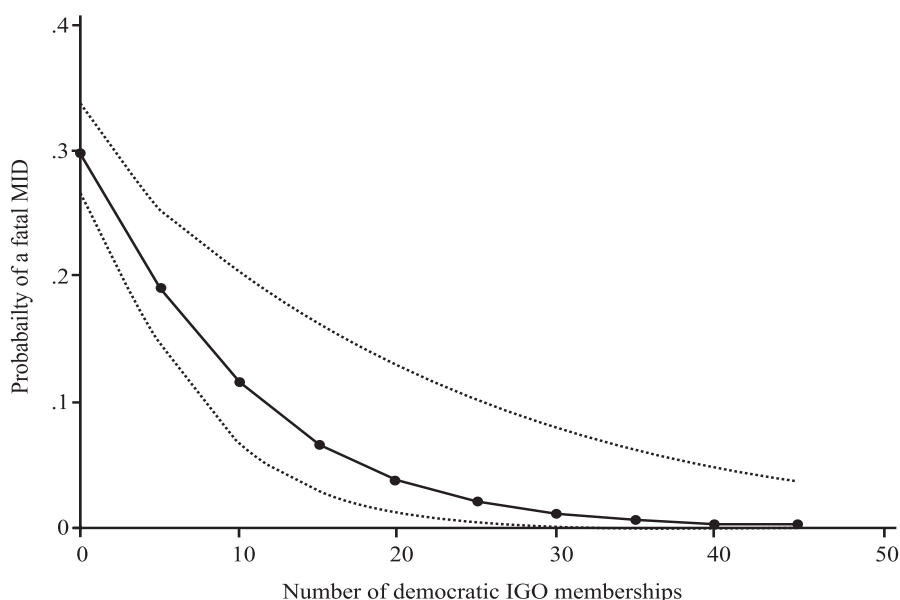


Figure 10: Predicted probabilities of escalation to fatal Militarized Disputes

3.1.5 Failure of bargaining

The decision to go to war is ultimately taken by individuals and thus much work has focused on the individual level for analysis. Fearon, assuming that both parties are rational actors, argues that there must be a reason, which prevents a mutually advantageous and enforceable agreement¹⁷. He summarises these as:

1. Asymmetric information about the potential costs and benefits of war.

Peace", *International Studies Quarterly* (Forthcoming)

¹⁶ Li Quan and R. Reuveny (2013), "Trading for Peace/ Disaggregated Bilateral Trade and Interstate Military Conflict Initiation", *Journal of Peace Research* (Forthcoming)

¹⁷ James Fearon (1995), "Rationalist Explanations for War," *International Organization* 49(3), pp. 379-414

2. A lack of ability to enforce a bargaining agreement and/or a lack of the ability to credibly commit to abide by an agreement.
3. Indivisibilities of resources that might change hands in a war, so that not all potentially mutually beneficial bargaining agreements are feasible.
4. Agency problems, where the incentives of leaders differ from those of the populations that they represent.
5. Multilateral interactions where every potential agreement is blocked by some coalition of states or constituencies who can derail it.

3.1.6 Future Trends

The world of 2030 is likely to look very different to our world today. No country- whether the US, China or otherwise is likely to be a hegemonic power. We are likely to see diffusion of power amongst states, individual empowerment and the rise of non-state actors, whom will often be facilitated by technological innovation. Parallel to this, continued economic growth of emerging economies coupled with demographic shifts is likely to lead to resource scarcity and subsequent competition. All of these changes will have implications for the future contours of conflict and warfare.

Economic Multipolarity & Resource Scarcity

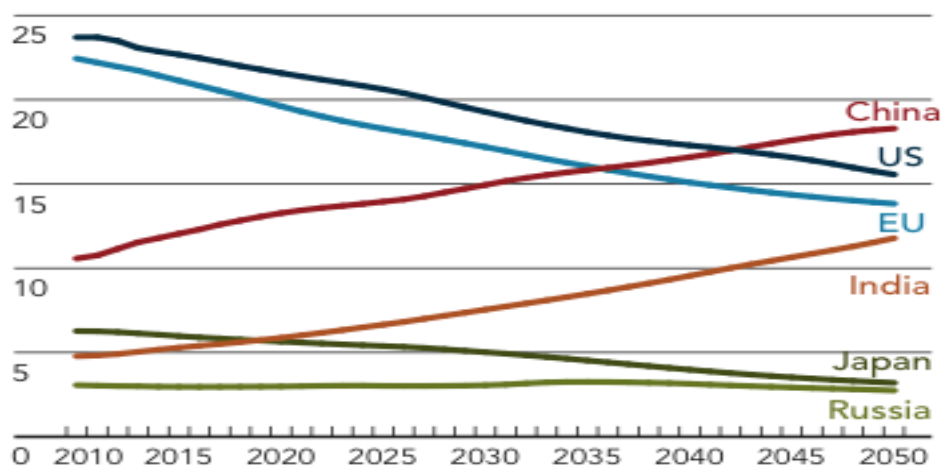


Figure 11: Multi-Component global power index forecast¹⁸

Declining U.S. economic power will erode the post-Cold War power equilibrium that has thus far been maintained with potential ramifications for global security if the U.S. is no longer able act as a global security provider, the “World’s policeman”. A further corollary of the economic growth of non-OECD nations is the issue of access to key resources- minerals as well as energy- both of which are critical to continued growth. The potential for disputes to flare up over these issues will increase- seabed rights is a particular pertinent issue across several regions, notably South China Sea, and the Indian, Arctic and South Atlantic Oceans.

¹⁸ National Intelligence Council, *Global Trends 2030: Alternate Worlds*, <http://globaltrends2030.files.wordpress.com/2012/11/global-trends-2030-november2012.pdf>

Rise of non-state actors and asymmetrical warfare

Since 9/11 arguably we have entered an era of ‘fourth generation warfare’, characterized by the prominence of non-state actors and asymmetrical distributions of capacity during conflict. These changing dynamics have been captured through the application of power law relationships. Power laws relate event magnitude to their frequency and are expressed by their ‘index’, as the index decreases the chance of a big event increases, and in this respect they can be seen to have “fat tails”. Conventional conflicts from 1816-1960 have been shown to have a power law exponent of 1.8, while terrorism events outside of the G-7 have had a power law exponent of 2.5. Recent assessments of the Iraq War and Columbia have shown that both have ended up averaging a power law exponent of 2.5. While conflict in Columbia began around 3.5 it eventually ended up at 2.5, whereas Afghanistan began at a more conventional 1.8 but subsequently settled at a power-law exponent of 2.5.

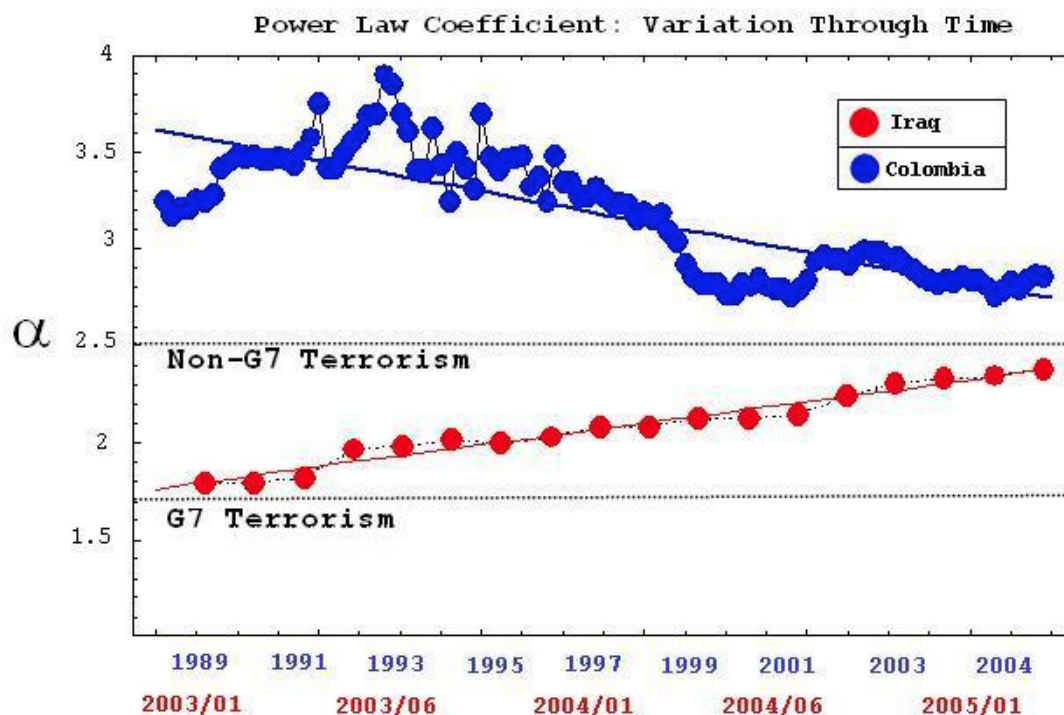


Figure 12: Power Law Coefficient variation through time- comparison of Iraq and Columbia¹⁹

Nature and technology of War

Over the last five centuries, the war cycle has lengthened somewhat, the wars themselves have shortened, and their severity has increased a hundredfold. As technology has become more destructive, the ability to end a conflict has dramatically increased.

3.2 Consequences

Broadly speaking the consequences of war can be broken into the 3 following categories; Economic, Political, and Social. There are of course many other classifications which are useful for analysing the consequences of war, two of which I shall mention. First we can distinguish between direct and indirect costs of war; a direct cost being the loss of human life, and an indirect cost being the impact

¹⁹ Neil Johnson, Michael Spagat, Jorge Restrepo, Oscar Becerra, Juan Bohorquez, Nicolas Suarez, Elvira Restrepo, Roberto Zarama (2006), “Universal Patterns Underlying Ongoing Wars and Terrorism”, *Working Paper, University of Miami*

on GDP or International Trade. Indirect costs tend to be much harder to measure. Secondly we can look at the geographical impact of the war; national, regional, or global. Here we must consider not only the physical space of war but the impact it will have. For example a war in the South China Sea may be a regional war in terms of geography but it would have a global impact due to its shipping lanes. The consequences will be expanded on below with examples discussed later in section 4.2.

3.2.1 Economic

The Economy

The impact war can have on the national economy greatly depends on whether they are the victor or loser and in which territory the war was fought, and even then no clear pattern can be established. Results from studies that have examined numerous wars over long periods of time have produced no straightforward relationship. Generally civil wars have tended to reduce income, examples include Angola, Chad, or the Congo, but there are also examples to the contrary such as India, which raised income. Turning towards international and conventional wars the results are even more ambiguous. Examples for which GDP increased are Israel, Syria, and China. GDP decreased for Egypt, Iran and Uganda. Looking specifically at the US economy we can examine the impact of a number of wars on its economy to highlight the reasons for any differences.²⁰

1. World War II was financed through debt and higher taxes, by the end of the war, U.S. gross debt was over 120% of GDP and tax revenue increased more than three times to over 20% of GDP. Although GDP growth skyrocketed to over 17% in 1942, both consumption and investment experienced a substantial contraction. One of the key causes was government control of raw resources and materials. Trend lines taken from before the war and dating from 1933 onwards clearly indicate that for investment, consumption, and GDP growth there was no increase in the trend lines after the war had finished. While unemployment was virtually eliminated, recovery was well underway prior to the war, and the key counterfactual is whether similar spending on public works would have generated even more growth.
2. Korean War was largely financed by higher tax rates with GDP averaging 5.8% between 1950 and 1953 with GDP growth peaking at 11.4% in 1951. During this period however, investment and consumption stalled. The government needed to implement price and wage controls in response to inflation, which had increased due to the additional stimulus that was created by government spending. Notably, both consumption and investment resumed growing after the war; however the growth was below the trend rate prior to the war. The stock market rose during the war.
3. Vietnam War was unlike World War II and the Korean War, as it ramped up slowly with American troop deployments starting in 1965. This war was largely funded by increases in tax rates, but also with an expansive monetary policy, which then subsequently led to inflation. Increases in non-military outlays also had a role to play. Unlike prior wars, consumption remained unaltered due to expansionary monetary policy although investment fell during the war. Again, as with the two prior wars, GDP growth increased and peaked at 7.3% of GDP in 1966. At the beginning of 1965, the Dow Jones index was at 900 and it wasn't till after October 1982 that it stabilized above the 900 mark.
4. Cold War period can be categorized as running from the late 1970s through to 1989. This period saw sustained increases in military spending alongside tax cuts which then resulted in

²⁰ Institute for Economics & Peace, *Economic Consequences of War on the U.S. Economy*, <http://www.thereformedbroker.com/wp-content/uploads/2012/02/Economic-Consequences-of-War.pdf>

a blowout in the budget deficit. Although there was a boom in consumption it was fuelled by a combination of increased deficit spending and higher government debt which in turn also caused interest rates to increase. This was also accompanied by a substantial trade deficit as well as a bull run with the Dow Jones index increasing from 1,121 in February 2003 to 2,810 in January 1990.

- The Iraq & Afghanistan War were accompanied by weak economic conditions right from their beginning and corresponded with the bursting of the high tech asset bubble which led to the 2001-2002 recession. This was also the first time in U.S. history where taxes were cut during a war high then resulted in both wars completely financed by deficit spending. A loose monetary policy was also implemented while interest rates were kept low and banking regulations were relaxed to stimulate the economy. All of these factors have contributed to the U.S. having severe unsustainable structural imbalances in its government finances.

International Trade

The impact of war on international trade is an indirect cost, and as such has typically been hard to measure. Add to this the persistent nature of the effects – trade levels do not return to pre-war levels for many years, and also the multilateral dimension of the impact – not just belligerents are affected but losses are incurred even by neutral parties, the consequence to international trade becomes extremely hard to measure. Because of the difficulty in measuring the impact of war on international trade, a clear methodological consensus has not been reached. Regardless, what can be said is that there is a definite and consequential cost to international trade. This is especially true for larger regional and global wars. One paper estimated the costs of World War I to be twice as large as the loss of human capital. For the bigger, longer, and deadlier World War II it estimated international trade costs to be on par with the human costs²¹. Using data from 1870 to 1997 the estimated costs of trade between belligerent and neutral pair countries are shown below. This clearly demonstrates the long lasting effects war has on the economy.

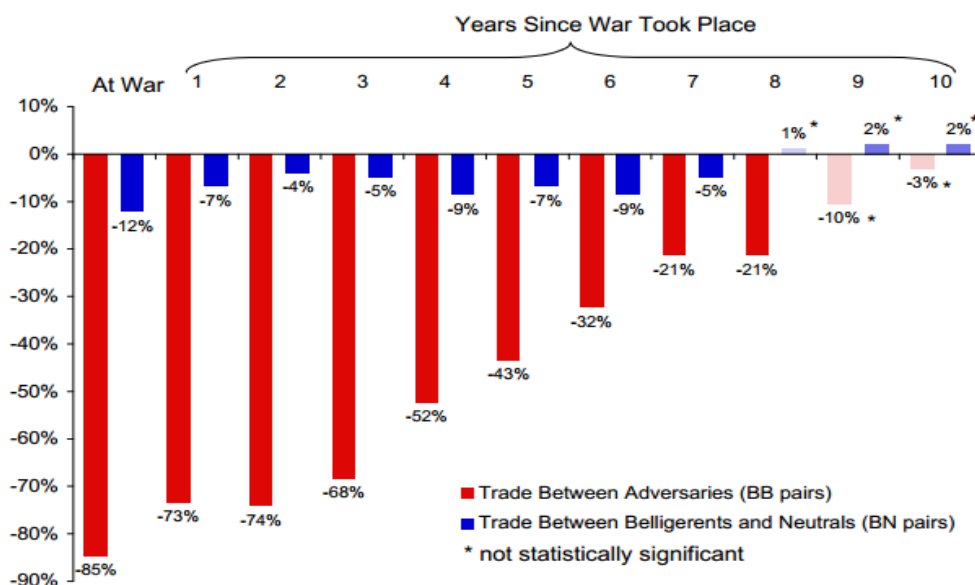


Figure 13: Impact of War on Trade for a Given Country Pair²²

²¹ Glick & Taylor (2005), "Collateral Damage: Trade Disruption and the Economic Impact of War", NBER.

²² Glick & Taylor (2005), "Collateral Damage: Trade Disruption and the Economic Impact of War", NBER.

Contrary to the liberal (deterrent) and realist theories (prevent an advantage) of why war impacts international trade we can find many examples throughout history of trade continuing between belligerents. “*Sleeping with the Enemy: The Impact of War on Trade*”²³ examines 7 dyads from 1870 until the present and finds although war sometimes leads to a temporary decline in the level of dyadic trade, in most instances war has no permanent long-term effect on trading relationships and, in fact, trade often increases in the post-war period.

Whilst in general war has a detrimental effect on international trade there are examples for which trade hasn't been significantly been affected, and even a handful for which trade improved in the post-war period. Other aspects of the geopolitical setup must be considered to understand the true consequences war will have on international trade.

Financial Markets

The major determining factor in how financial markets are affected by war is the surprise nature of the war. If the has been expected and scenarios fully played out the risk is partly priced in. Another major determining factor is the location of the war, certain countries affect financial markets more than others – the Middle East and OPEC countries for example have much more severe repercussions on global financial markets than those in Sub-Saharan Africa. What the markets dislike the most about war though is the uncertainty of it. A study on stock market prices from 1971 – 2004 showed that on average there is a boost to stock markets when the war breaks out.²⁴ This is obviously not always the case, a good example being the Italian stock market, which crashed at the news of a war in Libya. One relationship that can be established is that the more intense the conflict (duration and casualties), then the greater the impact on markets.

3.2.2 Political

Institutional

As well as having a destructive effect on the economic performance of a country, war can have a detrimental effect on institutions, undermining their authority and creating political instability. This is particularly noticeable in Sub-Saharan Africa where many countries have had their institutional capacity eroded by decades of war. This stunts development and comes with problems of corruption, state capture, inequality and inefficiency. Out of war can also come institutional capacity building, with treaties, peace accords, trade agreements and supranational organisations such as the U.N.

The consequences for political institutions is always unique to each war and greatly depends on the actions of the victor, and whether the war had support, or at least was condoned, by the international community. Recently we have seen near catastrophic failure in Afghanistan to build institutional capacity around the Karzai regime, as well as in places such as Somalia, Chad, and the DRC. Despite enormous sum of money being spent by the international development community they have been unable to repair the damage to institutions from prolonged conflicts.

3.2.3 Social

Health & Environmental

There is both a devastating physical and mental health effect of war on countries that engage in war. Many studies have shown the long lasting human costs of war. Further indirect costs have been shown when a population loses the male population

²³ Anderton & Carter (2001), “The impact of war on trade: An interrupted times-series study”, *Journal of Peace Research* 38(4) pp.: 445-457

²⁴ Massimo Gudolin (2005), “The economic effects of violent conflict: evidence from asset market reactions” *Journal of Peace Research* 47(6), pp. 671-684

The environment has always been a strategic element to war. It has been reported that the ancient armies of Rome and Assyria sowed salt into the cropland to destroy the soil for farming. With the advent of chemical, biological and nuclear warfare in the 20th century, the threat to the environment has become even greater. Although recently a trend towards precision has reduced the potential for wide spread environmental damage. The effects of war on the environment can be broken down into the following categories.

- **Habitat Destruction:** the Vietnam war is perhaps the most famously example, where it is reported that over 20m gallons of herbicide were dropped destroying around 4.5m acres of countryside.
- **Mass migration:** The rapid displacement of a population can have disastrous effects on the local environment if they cannot be adequately supported; deforestation, soil erosion, contamination, and overhunting.
- **Invasive Species:** The invasion of army into a new territory often bring foreign organisms alongside the equipment and personnel. This can lead to devastating effects on the local ecosystem.
- **Chemical Spills:** Often key infrastructures are targeted during wars now, these include all sorts of utilities. A consequence of this is that wastewater plants, power stations and chemical treatment plants are knocked offline leading to contamination of the environment
- **Increased production:** The war effort often involves a huge increase in production of goods, and environmental regulation can often be put aside during these periods.
- **Scorched Earth tactics:** A classic example of this is the Kuwaiti oil fires, where over 600 oil fields were set alight as the Iraqi military withdrew.
- **Hunting & Poaching:** Armies need to be fed and local species provide an excellent source of food.
- **Biological, Chemical & Nuclear Weapons:** These weapons have the potential to cause catastrophic environmental damage to the earth, the most severe being a nuclear winter.

Infrastructure

A very visible cost to war is the impact it has on a countries infrastructure. Transport, telecommunications, utilities, medical facilities all become legitimate targets during a war and are often left crumbling for years after. Iraq has been the focus of many studies recently due to the devastating Gulf Wars and recent Iraq War. Despite the billions of dollars that have been pledged to be spent on infrastructure upgrades the country is still in a state of ruin and this has had disastrous consequences for development and business. A study by the former UN humanitarian coordinator for Iraq in 1999 estimated that the destruction of Iraq's infrastructure and the UN imposed sanctions had led to the death of 600,000 children and 500,000 adults through malnutrition and disease. US officials had estimated the costs to repair infrastructure at \$55bn back in 2003, the majority of which has come directly from International donors.

Society

The impact of war on societies is much harder to measure, as they are both indirect and so far reaching. Below are a handful of important and documented consequences²⁵.

²⁵ Marshall (2001), "Measuring the Societal Impact of War", From Reaction to Conflict Prevention: Opportunities for the UN System, International Peace Academy by Lynne Rienner Publishers

- **Human Resources:** The loss of human capital, through death, injury, disease has disastrous consequences for social dynamics – crime, sexual violence, repression can all increase due to the disruption of social norms.
- **Displaced Populations:** Massive changes in the demographics of regions as populations are displaced puts a huge strain on societal forces. Often infrastructure isn't adequate to support the new influx of people, with increased competition for jobs and housing. Tensions rise and conflicts can flare up along ethnic, religious or ideological lines. A rise in crime is often associated with these shifts.
- **Local Communities (Societal Networks):** The societal forces that bound community's together and instilled norms are often completely destroyed. These traditions, developed over generations, often helped stabilise regions internally and are hard to replicate immediately.
- **Education & Opportunity:** The impact of war on children is enormous and multi-dimensional. One major impact is on the education and opportunity a child has growing up. Children tend to be affected disproportionately so during a war and as the future of a country this has very long-lasting consequences.
- **Wider Humanitarian Crises:** War can often lead to a wider humanitarian crisis which is the result of a combination of failures, such as infrastructure, economic and health. The larger impact of a humanitarian crisis on a country can set it back years in development, with some failing to escape the development trap decades on.

4 History

Whilst historians have long studied war, it was only in the aftermath of the two World Wars that the rigorous and systematic collection and quantification of data on war began. The goal was to develop a basic theory of war to help explain and prevent future catastrophes. The Correlates of War (COW) database, which began in the mid 60's, has now become the seminal conflict database. The key principles of the project are a commitment to standard scientific principles of replication, data reliability, documentation and transparency. They publish a wide range of datasets on conflict related data; Alliances, Identification of independent states, civil and interstate wars, national capabilities, etc. There are some drawbacks to their datasets, most notable being the 1000 man battle death threshold. This has become increasingly problematic as conflicts have become smaller, more frequent and less well defined. Other datasets provided by the Uppsala Conflict Data Program (UCDP), the International Peace Research Institute Oslo (PRIO), and Armed Conflict Location and Event Dataset (ACLED), have helped address these issues.

4.1 A catalogue of historical events

See attached excel document (Cytora War Database) for a historical view of all recorded wars. Fields include: War Name, State Name, Side, Battle Deaths, Start Year, End Year, Outcome, Duration, War Type & Magnitude Scale as outlined in Section 5 (this catalogue was built from the Correlates of War Project).

4.2 Historical Catalogue: A Brief Analysis

The following wars warranted further discussion than was possible to fit into the wider database. The discussions provide a brief analysis of each war. Both causes and consequences are addressed along economic, political and social dimensions, as well as an attempt to position the war in the wider global development of international relations. Each is accompanied by a short reading list for further enquiry.

First Opium War (1839 – 1842)Magnitude Classification: **2***United Kingdom vs. the Qing Dynasty of China*

- Chinese officials wished to end the spread of opium, and confiscated supplies of opium from British traders. The British government, although not officially denying China's right to control imports, objected to this seizure and used its military power to violently enforce redress. The war ended in 1842, with the Treaty of Nanking—the first of what the Chinese later called the unequal treaties—granted an indemnity to Britain, the opening of five treaty ports, and the cession of Hong Kong Island, thereby ending the trade monopoly of the Canton System. The failure of the treaty to satisfy British goals of improved trade and diplomatic relations led to the Second Opium War (1856–60). The war is now considered in China as the beginning of modern Chinese history.

Causes

- Failures of British diplomacy: The British felt that Canton trade policy was restrictive and sent missions in 1793 and 1816 (the Amherst embassy) to improve trade ties, both of which failed, which convinced the British that they would export illegally.
- British expansionism: The British took advantage of high opium demand in China, which it continued despite calls for complete prohibition by the Daoguang Emperor.
- Military confrontation: The unresolved Kowloon incident saw tensions run high which led to a dramatic military confrontation at Chuanbi on Canton Bay.

Consequences

- Casualties: A report submitted to the British Government in 1847 put total British combat casualties in the first Opium War at 69 killed and 451 wounded, while estimating Chinese casualties at 18,000 and 20,000.
- Trade: The treatise of Nanking and Tientsin opened numerous ports in China to foreign trade, tea exports increased by over 500% and silk exports rose by a factor of 28. Duties being set at 5% had disastrous consequences for the Chinese economy.
- Social Unrest & Rebellion: The weakness of the Qing Dynasty contributed to the Taiping rebellion which lasted from 1851 to 1864 in which it is estimated there were around 20 million casualties (the rebellion often received financial backing from the Imperial powers to undermine the Qing Dynasty).

Analysis

- The cost of reparations to foreign countries crippled the economy and reduced the capacity of the Manchu Government to provide basic services- leading to increased poverty and unrest- while the terms of the treaties were a continued source of embarrassment.

Further Reading

- http://ocw.mit.edu/ans7870/21f/21f.027/opium_wars_01/ow1_essay.pdf Reading 2
- Julia Lovell, *The Opium War: Drugs, Dreams and the Making of China*
- Ian Peyrefitte, *The Immobile Empire-- The first great collision of East and West*

The Gulf War (1990 – 1991)

Magnitude Classification: **2**

Iraq with Support vs. Kuwait, USA, UK, Saudi Arabia, France, Canada, Egypt, Syria, Qatar, UAE

- The invasion of Kuwait was first met with international condemnation and economic sanctions. A coalition was formed and troops were stationed in Saudi Arabia and a year later was followed by an aerial and ground assault to expel troops from Kuwait. Within 100 hours of the ground assault a ceasefire was declared.

Causes

- The origins of this war can be traced back to the British creation of Kuwait after WW I. Historically Kuwait was part of the Ottoman Empire's province of Basra, but after annexing it, Iraq became virtually landlocked.
- Iraq had also accused Kuwait of exceeding OPEC quotas, causing prices to fall from a desired \$18 a barrel to \$10. This cost Iraq over \$7bn a year, which was badly needed after the Iran-Iraq war for servicing its debts and repairing infrastructure. This was exacerbated by the claims of Kuwait slant-drilling into Iraq's oil fields.
- July 25 1990 US Ambassador to Iraq was quoted as saying to Saddam, "we have no opinion on Arab-Arab issues, such as your border disagreement with Kuwait", which was interpreted as a go ahead for war.
- Within 2 days the Kuwaiti military was overrun. What followed was months of diplomatic and military (Operation Desert Shield) positioning to try to force the withdrawal of Iraqi troops from Kuwait. Eventually a coalition was put together with an offensive rather than defensive military strategy (Operation Desert Storm).

Consequences

- Economic:
 - Iraq suffered huge losses both in terms of military strength and infrastructure that would cost billions to rebuild.
 - Strangely America made a profit on the war during the first fiscal year, with pledges from coalition forces exceeding the actual costs of war.
 - The early 1990s recession hit the US and Canada particularly badly, with high unemployment, massive government deficits and slow GDP growth, and this was partly drawn out because of the war. It hit Japan the worst, who has still yet to recover.
- Kuwaiti Oil Fires:
 - As much as 2% of Kuwaiti oil resources were consumed in total by the well fires which were set alight by the forces of Saddam Hussein after the failed invasion of Kuwait as part of a scorched earth policy (more than 700 oil wells were set alight- 85% of their wells).
 - Cost of extinguishing the fires stood at \$1.5 billion, while rehabilitating the hydrocarbon industry cost a further \$5 billion while lost output during the period amounted to \$10 billion.

- A final aggregate cost of the war has been estimated at between \$30 to \$50 billion to the Kuwaiti economy.
- Financial: Fears around the oil supply led to the cost of a single barrel rising from \$28 on August 6th 1990 to \$46 per barrel by mid October- an increase of over 60% in just 10 weeks
- Ideological: The USSR, a close ally of Iraq, was unable to take a position against the US-led alliance due to its declining economic strength further weakened in the region.
- Social:
 - Estimates put battle deaths for Iraq at around 22,000 and less than 1,000 for all coalition forces. Civilian casualties is put at around 100,000.
 - Around quarter of a million US vets returned suffering from Gulf War Syndrome which is a chronic multi-symptom illness.

Analysis

- The war signalled the end of a period in which the Middle East had a significantly destabilizing role in international affairs.
- During this period we were also witnessing a decline in the Soviet Union, reformist policies at home and also a failed war in Afghanistan. It could not afford to side with Iraq against the Americans and risk further war so resorted to a middleman position. This was definitely a turning of the tide which secured American dominance in the region.

Further Reading

- Barzilai, G. (1993), *The Gulf Crisis and its Global Aftermath*, Routledge.
- Kanovsky, E (1992), "The Economic Consequences of the Persian Gulf War: Accelerating OPEC's demise", *Washington Institute for Near East Policy*.

Iraq War (2003 – 2011)	Magnitude Classification: <u>2</u>
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U.S. led invasion vs. Iraq

- Both the U.S. and the UK claimed that Iraq under the leadership of Saddam Hussein had developed weapons of mass destruction which posed a threat to regional and global security.-In 2002 the UN passed Resolution 1441 in which Iraq would have to completely comply with weapon inspections. No evidence was found, however doubts remained over the accuracy of the findings, especially within the Bush administration. Against a backdrop of mounting pressure to avert war, both at home and abroad, the American led coalition launched its military invasion of Iraq on 20 March 2003.

Causes

- Regional Security & U.S. hegemony: The U.S. believed that Saddam Hussein posed a threat to the regional security and was a loose cannon who continually flouted resolutions- the U.S. had previously taken military action against Saddam Hussein in the first Gulf War.

- Weapons of Mass Destruction (WMDs): The war was largely framed and justified in terms of the presence of WMDs- this has been highly controversial

Consequences

- U.S. Economy:
 - Stiglitz and Blimes estimate that the total cost of war in Iraq has reached over \$3 trillion- and in part has been responsible for the rise in oil prices, the scale of federal debt and the depth of the economic recession.
 - At the outset of war oil was \$25 a barrel, by 2008 it was \$140- interruption to Iraqi production and dampened prospects for investment in the Gulf region pushing prices up- leading Stiglitz and Blimes to estimate the Iraq war as directly adding \$10 to the price of oil per barrel- at a cost of \$250 billion.
 - This was the first war in American history in which the government cut taxes as it entered war- resulting in a war largely paid for by credit. U.S. debt rose from \$6.4 trillion in March 2003 to \$10 trillion in 2008 (before the financial crash), with at least a quarter of that rise attributable to the Iraq war.
 - Arguably the Iraq war contributed to the conditions that led to such a severe financial crisis; specifically the bubble created around low interest rates and soft regulation to spur economic growth at home (as investment was diverted overseas).
- Iraqi economy: Rowat estimates that the Iraqi economy would have been at \$61 billion in 2005 had it not been for the war (compared with the actual \$37 billion), which works out at around a loss of \$24 billion, with around another \$6 billion lost in foreign aid.
- Casualties: The Iraq body count project estimates that there have been 105,052-114,731 violent civilian deaths and over 162,000 civilian and combatant deaths (up until January 2012)
- Political Upheaval: The power vacuum created in Iraq has created what has developed into a civil war- with Sunni, Shia and Kurdish factions. Furthermore the questionable justification for the invasion of Iraq has damaged the reputation of both the U.S. and the UK (domestically as well as internationally). A BBC World Service poll in 2007 found 73% of the global population disapproved of the U.S. handling of the Iraq war, with particular dissatisfaction in the Arab world.

Analysis

- The U.S. appetite for intervention has been coloured by the protracted and controversial nature of the Iraq invasion, while arguably the political damage done to Blair's reputation was a key factor in his fall from power. The conflict has also spawned what has been seen as a new style of warfare- "asymmetric" or "21st century".

Further Reading

- Toby Dodge, *Iraq: From War to a New Authoritarianism*
- James DeFonzo, *The Iraq War: Origins and Consequences*
- <http://costsofwar.org>

Crimean War (1853 – 1856)

Magnitude Classification: **3/4**

French, British, Ottoman Empires and Kingdom of Sardinia vs. Russian Empire

- The war was part of a long-running contest between major European powers for influence over territories of the declining Ottoman Empire. Most of the conflict took place on the Crimean peninsula, but there were smaller campaigns in eastern Anatolia, Caucasus, the Baltic Sea, the Pacific Ocean and the White Sea.
- The Crimean War is known for logistical and tactical errors during the land campaign on both sides (the naval side saw a successful Allied campaign which eliminated most of the ships of the Russian Navy in the Black Sea). Nonetheless, it is sometimes considered to be one of the first "modern" wars as it "introduced technical changes which affected the future course of warfare", including the first tactical use of railways and the electric telegraph. It is also famous for the work of Florence Nightingale and Mary Seacole, who pioneered modern nursing practices while caring for wounded British soldiers.
- The Crimean War was one of the first wars to be documented extensively in written reports and photographs: notably by William Russell (writing for The Times [of London] newspaper) and the photographs of Roger Fenton. News from war correspondents reached all nations involved in the war and kept the public citizenry of those nations better informed of the day-to-day events of the war than had been the case in any other war to that date. However, nowhere more than Britain was the public kept better informed of the day-to-day realities of the war in the Crimea. Consequently, public opinion played a larger role in this war than in any other war in history. The relatively instantaneous news created a real "patriotism" among the middle classes of England which brought down the coalition Aberdeen government and brought Lord Palmerston into office as Prime Minister.

Causes

- French (Napoleon III) territorial aggression, to build domestic support amongst the Catholic political right in France.
- English and French concern about increased Russian power in expanding into the weakening Ottoman Empire.
- Weakening Ottoman Empire and ethnic fragmentation presented an opportunity for aggressors to seize territorial resources for empire building.

Consequences

- Economic Modernization - Crimean war, and recognition of economic and technological disadvantage, prompted large scale Russian internal reform and industrialisation. Across Europe, war drove states to increase their industrial output to modern industrialised neighbours.
- End of Multinational Empires: Signalled the weakness of multinational empires (e.g. Ottoman Empire) and the rise of nation states (France) that were more efficient at prosecuting wars and standardizing resources.
- State formation: Crimean war enabled the formation of two new nation states: Italy and Germany which increased territorial competition in Europe.

- Systemic Change – Crimean War readjusted the European balance of power. It engendered the collapse of Vienna settlement which had previously enabled French, English, Austrian, Prussian and Russian cooperation. The new six-power European system that emerged after the end of the war proved less stable than its predecessor, while the expectation that political and diplomatic aims could be satisfied by war led these states to adopt ever closer alliances.
- Social implications – Close to 1.25 million people died (25,000 British, 100,000 French and up to a million Russians died).

Analysis

- Polarity of the World - The Crimean war instigated a realignment of the European balance of power - which was ultimately unstable, unbalanced and competitive and hence facilitated the origins of the First World War.
- The Crimean war is generally seen as the first Modern war in which technology and innovation had a pivotal impact. It saw the first military use of many innovations, such as armoured warships, the intercontinental electric telegraph, submarine mines and war photography.
- The Crimean War was also a watershed in Western involvement and interest in the Middle East. The Ottoman Empire, excluded from the Vienna settlement of 1815, was brought into the European political system.

Further Reading

- Royle, Trevor. *Crimea: The Great Crimean War, 1854-1856*. St. Martin's Press, 2000.
- Goldfrank, David M. *The origins of the Crimean War*. New York: Longman, 1994.

World War II (1939 – 1945)	Magnitude Classification: <u>4</u>
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Allies vs. Axis

- WW II was the most widespread and deadly war in human history. It placed all the major powers of the world in a state of 'total war', where the full economic and social capacity of the country was diverted to servicing the war effort. As well as the largest military death toll – 30m, civilian deaths were estimated round twice that – 55m. This was largely due to events such as the Holocaust and the only ever use of nuclear weapons in a war. It was another war that saw great empires around the world competing for power and resources, and eventually resulted in the total shift in the political and social structures of the world, as well as the destruction of European economies. Out of it was born the United Nations, which succeeded where the League of Nations had failed, as well two major superpowers who would compete for the next 45 years for world supremacy. It also led to the decolonisation of much of Asia and Africa.

Causes

- The Treaty of Versailles, specifically the (i) War Guilt Clause, (ii) Reparations, (iii) Disarmament, (iv) Territorial Clauses, all imposed insurmountable terms of the German people, who suffered because of it, eventually choosing to elect Hitler to fight against it.

- Hitler's actions, who rebuilt Germany's military, and then expanded into the Rhineland, Austria, first Sudetenland and then the first of Czechoslovakia, and then finally Poland.
- Failure of appeasement adopted by Neville Chamberlain in the UK, and in France
- Failure of the League of Nations; it had no power, no army, was slow to act, and not everyone joined.

Consequences

- Economic
 - The economic effects were huge and wildly different for each economy. The total direct economic cost of the war was estimated at \$1.5tn, with US accounting for 21%, UK 20%, Germany 18%, USSR 13%, and 28% spread across the rest of the world.
 - It bankrupted Britain, who left with a national debt of 250% of GDP, obliterated Germany, sent the US into the golden age of capitalism where it experienced the highest and most sustained period of economic growth ever.
- Trade: there was a spate of multilateral trade agreements after WW II which attempted to deal with the problems of protectionism. This kicked off the second era of globalization, which the world has not looked back from since.
- Political:
 - We saw the emergence of liberal democracy as one of the dominant systems of government in the world, triumphing over dictatorships and fascism in much of Europe, as well as a socialist state in the USSR and Eastern Bloc.
 - WWII also began a period decolonization, which saw the emergence of the Third World which both superpowers tried to capture, court and influence.
- Ideological: The origins of the cold war began in the immediate aftermath to WW II which pitted the ideologies of two emergent superpowers against each other for the next 45 years.
- Social: WW II was the most deadly war in the history of the world, which saw approximately 2.5% of the world's population killed.

Analysis

- After WW II a truly bipolar world emerged in which two superpowers competed for supremacy, largely resulting in an arms race that saw us come close to total nuclear destruction.
- The bipolar nature of the Cold War would result in many proxy wars in the years to come all across the third world.

Further Reading

- Horowitz, S. (2004), "*Restarting Globalization After World War II - Structure, Coalitions, and the Cold War*", Comparative Political Studies. Vol 37(2) pp. 127-151.
- Terborgh, A. (2003), "*The Post-War Rise of International Trade*", Working Paper No. 78, LSE.
- http://www.pearsonhighered.com/assets/hip/us/hip_us_pearsonhighered/samplechapter/0205075835.pdf

4.3 Historical Case Studies

4.3.1 The Second Sino-Japanese War (1937-1945)

The Second Sino-Japanese War was a military conflict of enormous scale, which brought about fundamental consequences both for the two countries and for the entire region. Called so after the First Sino-Japanese War of 1894-95, it was fought primarily between the Republic of China and the Empire of Japan from 1937; when it ended, after Japan's surrender in 1945, between 15 and 20 million people had died (Fig 16), and more than 90 million Chinese were refugees in their own country.

Origins and escalation of the conflict

Even though full-scale war erupted in 1937, the origins of the conflict have to be traced back to 1931, when Japan invaded and occupied Manchuria, sticking to its imperialistic vision of a "Great East Asia Co-Prosperty Sphere" (a Japanese-dominated Asian new order). Japan's main interest in the region was to secure its vast mineral and coal reserves and other economic resources, particularly food and labour. Moreover, the area represented an important market for Japanese manufactured goods, as well as a geopolitically strategic buffer state against the Soviet Union in Siberia.

Having been barely touched by World War I, Japanese industry and trade had expanded dramatically during that war to fill the gap left by Europe's devastated industries²⁶. However, most of the raw materials needed to supply Japanese manufacturing industry had to be imported because Japan possessed inadequate natural resources. This problem was compounded by substantial population increase. In the interwar period, Japan's population had expanded dramatically and outstripped the capacity of the nation's resources to support it (Fig 17). To sustain its population blow-out, substantial food imports were essential, but foreign tariffs imposed on its exports of manufactured goods limited the capacity of Japan to pay for its food imports. For Japan, especially after the military extremists took political control in the late 1920s, China was the obvious place to expand.



Map of China and Japan in 1932, one year after the Japanese occupation of Manchuria

26 Miyajima, H. (1992) *Japanese Industrial Policy during the Interwar Period: Strategies for International and Domestic Competition*, in *Business and Economic History*, Second Series, Volume 21

In the 1930s, China was a divided country. In 1927 Chiang Kai-Shek had formed Nationalist Government – the Kuomintang (KMT), but Mao Tse Tung’s Communists (CCP) harshly opposed his dictatorial regime. Civil war between the Communists and Nationalists erupted in 1930 – the period of Mao’s legendary ‘Long March’. Hence, the Japanese encountered almost no resistance, apart from some popular uprising and insurgency by the Manchurians and North Chinese, which were brutally suppressed²⁷.

In this context, the Chinese suffered continued territorial encroachment from the Japanese, using their Manchurian base. The whole north of the country was gradually taken over. The official strategy of the KMT was to secure control of China by defeating her internal enemies first (Communists and various warlords), and only then turning attention to the Japanese invasion.

However, in July 1937, skirmishing between Japanese and Chinese troops on the frontier led to what became known as the Marco Polo Bridge Incident; this fighting sparked a full-blown conflict, that pushed the Chinese Nationalists and the Communists to fight side by side against Japan. Unlike Japan, China was unprepared for total war and had little military-industrial strength, no mechanised divisions, and few armoured forces, and in the first phase of the conflict it suffered major defeats.



Although the Japanese quickly captured all key Chinese ports and industrial centres, including cities such as the Chinese capital Nanking and Shanghai, CCP and KMT forces continued resisting. Chiang never seemed seriously to have considered an armistice, but instead called for a "war of resistance to the end" (*Kangzhan daodi*), which condemned many Chinese to years of harsh Japanese control, near famine conditions, and an increasingly brutal and terroristic KMT regime. In the conflict, both sides used ‘scorched earth’ tactics; massacres and atrocities were common. The most infamous, the so called “rape of Nanking”, came after the capital’s fall in December 1937, when Japanese troops slaughtered an estimated 300,000 civilians and raped 80,000 women. On the other hand, Chiang ruthlessly ordered the destruction of the dykes on the Yellow River to stop the Japanese advance, which left more than half a million Chinese dead and 4.8 million as refugees.

The economic and political impact

The Chinese economy and, by extension, the tax base was concentrated, as it is today, in the coastal cities and along the Yangzi River; Japan by the fall of 1938 had taken all Chinese centres of economic activities. The Nationalists tried to move their industrial base with them, relocating factories from occupied China. Despite this effort, the move inland cost them nearly 87 % of their productive capacities.²⁸ Moreover, expenditures rose and Chinese economy had to rely ever more heavily on borrowing to sustain government funding, investment and consumption (Fig 14). Japan’s occupation of coastal China caused a dramatic drop in Chinese exports (Fig 15), as well as in customs revenues, which were compensated for by a phenomenal growth of direct taxes²⁹.

27 Paine, S. C. M. (2012) *The Wars for Asia: 1911-1949*, Cambridge University Press, Cambridge UK, 2012

28 Chinese Ministry of Information, (1947) *China Handbook 1937-1945*, MacMillan, New York, 187-212

29 Chinese Ministry of Information, (1947) *China Handbook 1937-1945*, MacMillan, New York, 187-212

On the other hand, the Japanese strategy landed Japan in a protracted war whose costs rapidly undermined the home economy. Whereas from 1931 to 1936, Japanese economic statistics show flourishing growth, from 1937 onward key economic statistics plateaued (Fig 4). Territorial expansion no longer benefited the economy: on the contrary, it constituted an increasing cost³⁰ so that by 1940 the Japanese home islands faced food shortages.³¹

By 1940, the war descended into stalemate. The Japanese seemed unable to force victory, despite having occupied much of north and coastal China, nor the Chinese to evict the Japanese from the territory they had conquered. Despite having played little role until that point – mainly in the form of feeble economic aid to China from the Soviet Union, the United States, the United Kingdom, France and, till 1938, from Nazi Germany -, western intervention would transform the nature of the war. Indeed, it was in response to western countries' economic sanctions (most importantly oil) that Japan decided to attack America at Pearl Harbour, and so initiate World War II in the Far East.



Within a few days of the attack on Pearl Harbour, China formally declared war against Japan, Germany and Italy, and almost immediately Chinese troops achieved a decisive victory in the Battle of Changsha, which earned the Chinese government much prestige from the Allies. President Franklin D. Roosevelt referred to the United States, United Kingdom, Soviet Union and China as the world's "Four Policemen" elevating the international status of China to an unprecedented height after a century of humiliation at the hands of various imperialist powers.

The United States and the Soviet Union put an end to the Sino-Japanese War by attacking the Japanese with a new weapon (on America's part) and an incursion into Manchuria (on the Soviet Union's part); the Japanese troops in China formally surrendered on September 9, 1945.

The war represents a turning point for subsequent Chinese political and ideological developments, as well as for Sino-Japan relations. Firstly, the economic destruction caused by the war, together with the brutality and corruption of the KMT regime, prompted many Chinese to support the Communists; Mao defeated Chiang four years later and the long story of the rise of modern China could begin. Secondly, as Oxford Chinese history Professor Rana Mitter states, the circumstances of the war made the concept of the nation, and personal identification with it, more urgent and meaningful for many Chinese. Finally, the war is still crucial for understanding the virulent anti-Japanese emotions of Chinese people today; the massacres and atrocities of the Japanese during their occupation have not been forgotten yet.

The Second Sino-Japanese War was thus pivotal both for World War II equilibriums and for those countries' subsequent developments: as Mitter recently pointed out, one of the things you might say about the current Asia-Pacific region is that it is coloured by the unfinished business of 1945.

30 O'Neil, W. D. (2003) *Interwar U.S. and Japanese National Product and Defence Expenditure*, CAN Corporation
31 Paine, S. C. M. (2012) *The Wars for Asia: 1911-1949*, Cambridge University Press, Cambridge UK, 2012

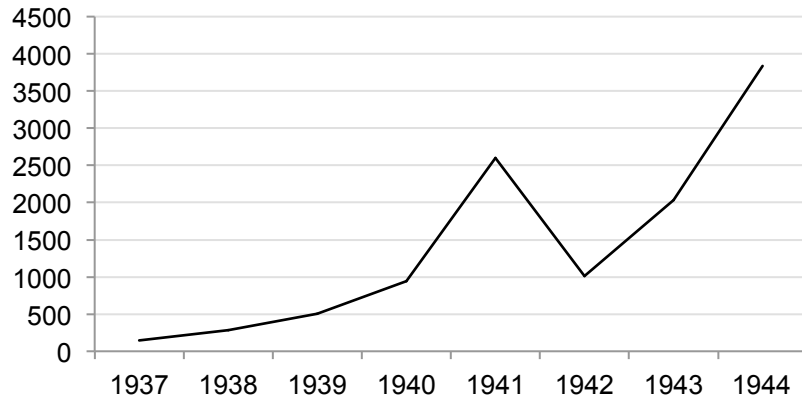


Figure 14: Outstanding Loans of The Farmers' Bank of China, \$ Million 1937-44

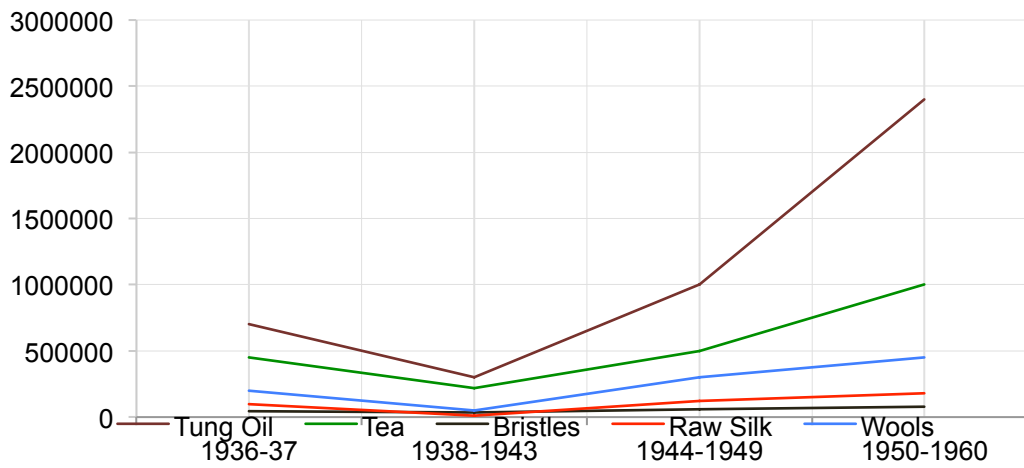


Figure 15: Estimate of Exportation of China's Chief Export Commodities 1936-60

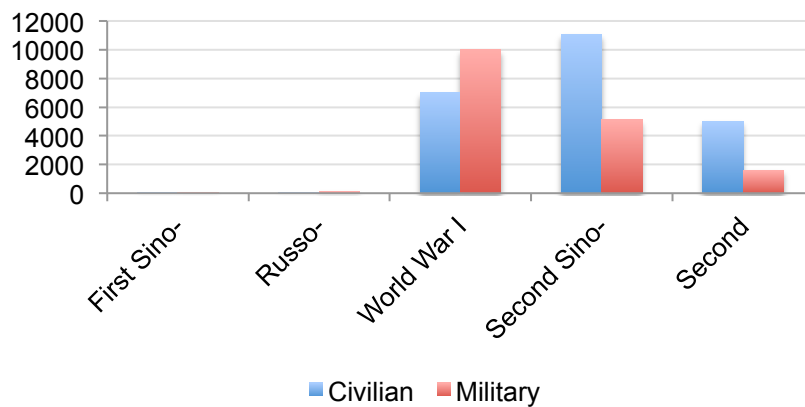


Figure 16: Military and Civilian Casualties (thousands); First and Second Sino-Japanese War, Russo-Japanese War, World War I, Second Chinese Civil War

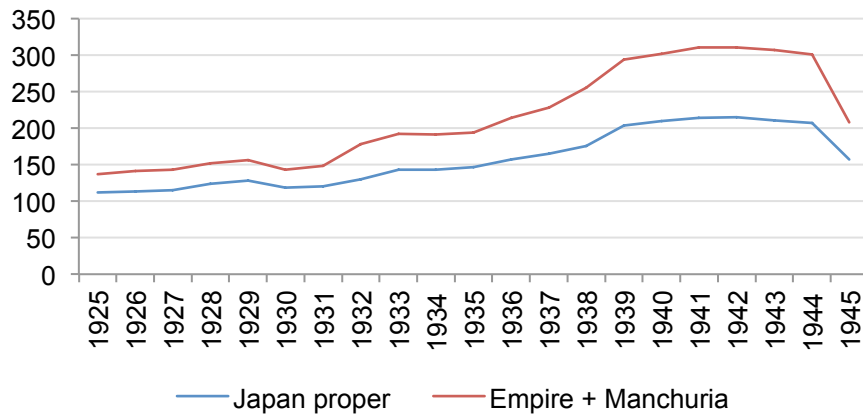


Figure 17: GDP of Japan and External Empire in billions of 1990 International \$ 1925-1945

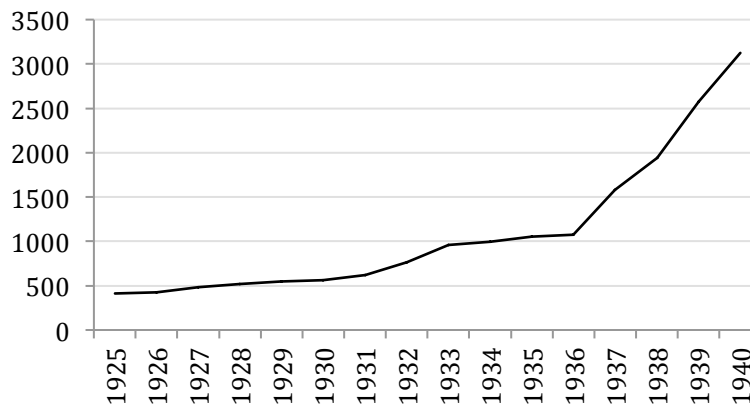


Figure 18: Japanese defence expenditure in millions of 1937 dollars 1925-1940

4.3.2 Iran-Iraq War- 1980-1988

Following the Iranian revolution of 1979 Iraq invaded Iran to assert itself as the regional power in the Gulf while minimising the possibility of insurgency amongst its own oppressed Shia population. The war lasted between 1980-88, making it the 20th century's second longest conventional war (after the Second Sino-Japanese War). The war saw conventional tactics employed through the use of human wave attacks and the bombing of civilian & economic centres, however the use of drone aircraft, chemical weapons (as many as 20,000 Iranian deaths from nerve agents alone) and advanced ballistic missiles in the course of fighting (more than 1000 employed) were relatively new.³²

Human Impact

Attacks on civilians also featured heavily during the war. It is estimated that around 1 million people died in the course of the war,³³ with at least 20% of this number comprising civilian casualties.³⁴ [See

³² F. Barvarz, *Islamic Atomic Bomb Cookbook*, (Trafford Publishing, BC, Canada, 2010)

³³ R. Picciotto, M. Clarke, U. Olonisakin, *Global Development and Human Security* (Transaction Publishers NJ, USA, 2007/2010)

³⁴ R. Picciotto, M. Clarke, U. Olonisakin, *Global Development and Human Security* (Transaction Publishers NJ,

fig 20. for life expectancy throughout war]. Air raids on civilian centres were also common during the war, less as a military objective, but rather as an exercise in causing terror in the opposing population. Iraq launched raids with short-range fighter aircraft against boarder cities in Iran and used strategic bombers obtained from the USSR to attack Iran. Iraq also fielded a number of ballistic missile systems. The response from Tehran was like for like raids against Baghdad, and using clandestinely obtained Scud missiles against Iraqi civilians.

Economic Impact

In 1980 at the beginning of hostilities, Iraq held the equivalent of 35 billion USD in foreign exchange reserves, mostly comprised of rents from petrochemical exports. By 1988 however the huge costs of the war, both in military spending and destruction meant that Iraq had at least 80 billion, and perhaps as much as 105 Billion USD of foreign debt (240% of yearly GDP). Reconstruction costs were estimated at around 230 billion USD or 20 years worth of oil exports alone. In total Iraqi war damage amounted to almost 1 billion dollars for each month of war with aggregate damage to the economy as a whole coming to 555 billion USD (2000 dollars).³⁵ By 1989 Oil revenues had recovered to around 13 billion dollars (per year), however the regime was having to spend large amounts on military imports, foodstuffs and debt service repayments. Furthermore, the Iraqi economy had to contend with the demobilisation of its troops and subsequent soaring unemployment.³⁶ By the close of the 1980s Iraq's economy was badly damaged, thus the importance of oil revenues to Baghdad grew, with the price of oil as a commodity becoming a highly sensitive political issue. The refusal of the UAE and notably Kuwait to moderate their oil production and thus maintain high prices for oil on world markets had severe consequences for Iraq and serves as a primary factor in influencing further Iraqi belligerence in the Gulf zone during the early 1990s.³⁷ [See fig 21. for stagnation of Iraqi GDP per capita over war duration & fig 22. for losses in productivity]

Iran likewise suffered badly from the war's consequences. With a monthly cost of \$4.9 Billion dollars, the war cost Iran around 1.5 times its aggregate GDP during the period 1980 to 1988 (2000 dollars) constant.³⁸ The 257 billion USD of damage to Iranian infrastructure was half the state's GDP alone. (2000 dollars constant).³⁹ UN estimates for the war run to \$644 billion in total. A figure composed of lost production of \$450 billion, lost oil revenues of \$84 billion, and \$110 billion of ancillary costs including lost investment and increased military spending. Even lower cost estimates still conclude that damage to Iran and increased costs, came to more than half a trillion USD over the period concerned.⁴⁰ These losses are highlighted when we look at oil exports, prior to the outbreak of the tanker war (1984) the year 1984 to 85 had seen Iranian oil revenues decline from \$19 billion to under \$13 billion.⁴¹ [Fig. 19 shows loss of energy production]. Between March 1984 and Jan 1987 106 tankers carrying Iranian oil were attacked, as a result shipping rates for visiting Kharg Island (Iran's main oil export depot) increases by three to four times. This in consequence increased the price of Iranian oil by 2 to 3 dollars per barrel. Iran in response was forced to subsidise oil exports and between 1984 and 1988 lost perhaps 3 billion dollars in foreign exchange earnings.⁴²

The tanker episode not only impacted regional trade but had implications for a key global trade route: the Strait of Hormuz. It also highlighted the tacit support that non-belligerent states such as the US and Saudi Arabia were providing to their non-formal allies. The strategic aim of these attacks was

USA, 2007/2010)

³⁵ H. Askari, A. Mohseni & S. Daneshvar, *The Militarization of the Persian Gulf: An Economic Analysis* (Edward Elgar Publishing, Cheltenham, UK, 2009)

³⁶ E. Karsh, *The Iran-Iraq War 1980-1988* (Osprey Publishing, Oxford, UK, 2002)

³⁷ M. Brecher & J. Wilkenfeld, *A Study of Crisis* (University of Michigan Press, USA 1997)

³⁸ E. Karsh, *The Iran-Iraq War 1980-1988* (Osprey Publishing, Oxford, UK, 2002)

³⁹ E. Karsh, *The Iran-Iraq War 1980-1988* (Osprey Publishing, Oxford, UK, 2002)

⁴⁰ G. Harris, *The costs of armed conflict in developing countries*, In ' *Recovery from Armed Conflict in Developing Countries* ' Edited by Harris G. (Routledge, London, 1999)

⁴¹ E. Karsh, *The Iran-Iraq War 1980-1988* (Osprey Publishing, Oxford, UK, 2002)

⁴² K. Mofdid. *Economic Consequences of the Gulf War* (Routledge, NY, USA, 1990)

to provoke Tehran into closing the Strait of Hormuz in retaliation, thus escalating the conflict by involving regional powers and the USA all of whom would see closure of the seaway as a threat to their interests. The US for instance allowed neutral ships to sail under its Flag and thus offered them naval protection; however this prevented them from engaging in trade with Iran.

The combined cost of the war for both Iraq & Iran, over its eight years is \$1.3 trillion all told (2000 dollars constant). Prior to the war between 1975 and 1979 around 60% of Iraqi oil revenues were dedicated to military spending. In the year following the revolution Saddam increased military spending by a further 55% so that by the outbreak of the war itself it was spending 20% of its GDP on the military and importing 5 times more armaments when compared to Iran. To put this in perspective this is 1.6 times combined oil revenues of both states from 1975 to 2000 or indeed 2.6 times oil revenues from 1900 to 1988 (2000 dollars constant).⁴³

Iraq and Iran suffered economically and socially from these years of war; catastrophic military spend, loss of trade and infrastructural destruction, combined with the appalling casualty rate stunted the growth and development of these two states. While the war may have slowed the momentum of the Iranian revolution outside of its borders it arguably- through a rally around the flag effect- underscored the legitimacy of the Iranian revolution at home- while Iraq's failure to assert itself as the regional power cannot be separated from its later decision to invade Kuwait.

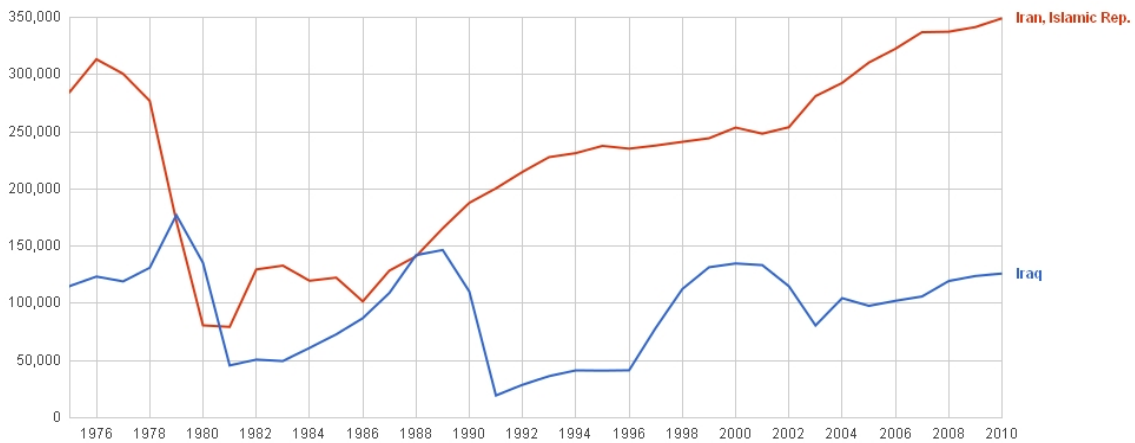


Figure 19: Energy Production, Iran and Iraq 1976-2010 in kiloton's of oil output

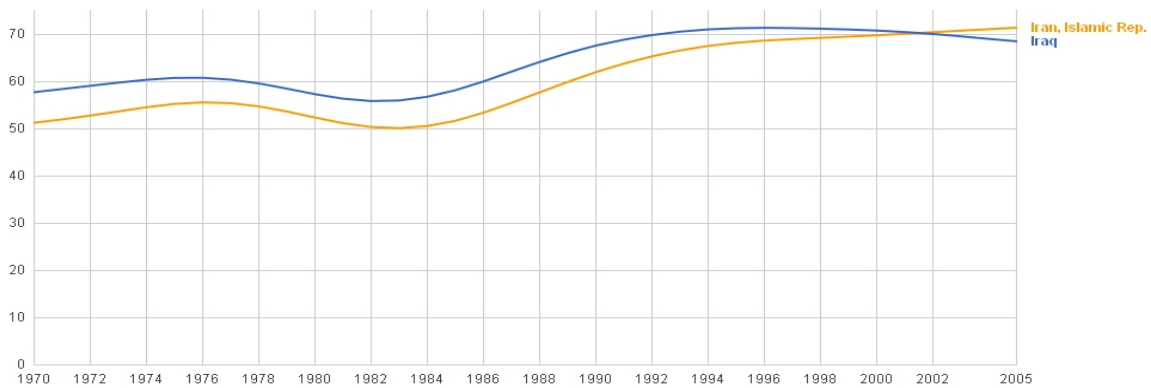


Figure 20: Iran/Iraq life expectancy 1970-2005

⁴³ E. Karsh, *The Iran-Iraq War 1980-1988* (Osprey Publishing, Oxford, UK, 2002)

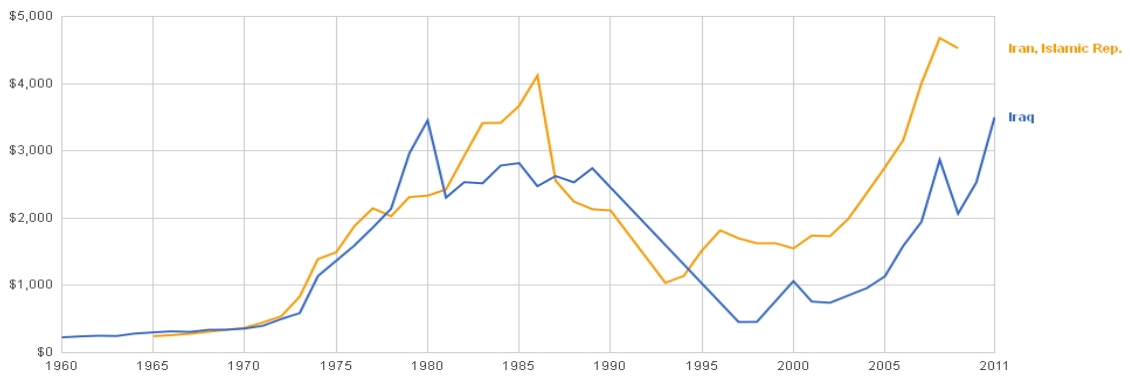


Figure 21: Iran/Iraq GDP per Capita 1960-2011

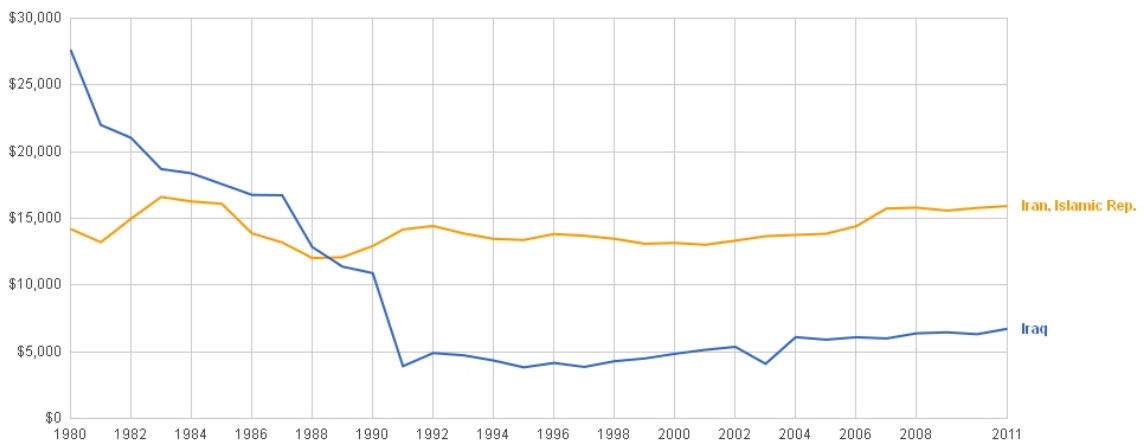


Figure 22: Iran / Iraq GDP per person employed (constant 1990 USD)

5 Magnitude scale

The historical catalogue, alongside several detailed case studies (see appendix for further cases), has been analysed in order to derive a magnitude scale that captures the severity of war. Many factors were taken into consideration, e.g. size of belligerents, length of conflict, casualties, disruption, economic and social impact, etc. Figure 23 (below) presents the scale, with the following text providing the justification and further details about each magnitude.

	Mag 1	Mag 2	Mag 3	Mag 4	Mag 5
Description	Bilateral conflict between tier 3+ countries; regional conflicts tier 3+	Country invasion by a superpower; bilateral conflict between two medium-rank countries	Regional war between a superpower and at least one other G20 nation; Proxy war between superpowers	Multi-regional conventional war involving superpowers	Thermonuclear or global world war
How often is it likely to occur?	Frequently – once a year, constant wars being fought in 21st century	Observed twice in past 10 years	Difficult to estimate but say 1-in-100?	Historically has occurred twice in past century but globalisation and new 'business case for war' renders it extremely unlikely : 1-in-1,000?	Close call in Cuban Missile crisis, 1962; Diminishing likelihood – maybe impossible? Say 1-in-10,000?
Historical precedent examples	1. Lithuanian-Polish War 2. Aouzou Strip War (Libya vs. Chad) 3. Cenepa War (Ecuador vs. Peru)	1. Iraq War 2. Kargil War 3. Falklands War 4. Vietnam war	1. Russian Japanese War 2. Second-Sino Japanese War	1. Crimean War 2. WW1 3. WW2	None

Figure 23: Magnitude Scale

5.1 Magnitude summary

Magnitude 1 Wars

While these are relatively frequent they are generally more limited in their social, economic and political (external) impact. These have primarily been fought for economic or political reasons. These conflicts are often characterised by a roughly symmetrical distribution of power between belligerents (relatively low) which has two potential implications: a) the conflict can be stopped quickly by outside intervention, e.g. El Salvador and Honduras fought the "100 hour war", which was curtailed quickly by the Organization of American States. This is more likely to happen in a unipolar world where there is a 'global policeman'. Or b) the equal nature of belligerents can lead to a protracted

conflict or prolonged tensions with sporadic escalations, e.g. the Libyan-Chad conflict over the Aouzou strip lasted from 1978-1987. This is more likely to happen in a bipolar or multipolar world where there is less likely to be outside interference. Furthermore, in a bipolar world, Magnitude 1 wars are likely to increase as 'proxy' wars are fought between the two vying superpowers. Magnitude 1 Wars are usually limited in their modes of warfare and geographical scale, because of the relatively low resources of the belligerents- meaning these conflicts are usually fought between proximate countries, in restricted areas and with limited technologies; a further reason why they have limited economic, political and social impact.

Magnitude 2 Wars

These wars occur fairly frequently with often-wide scale economic, political and social implications. Country invasions by superpowers have been driven by ideological and political considerations in the past century (Vietnam, Afghanistan, Iraq) Country invasions by a superpower are likely during periods of unipolarity and Multipolarity, and can function as 'proxy wars' during periods of bipolarity, although a bipolar world may curb their scale due to the fear of escalation. Invasions by superpowers are characterised by the asymmetrical distribution of power, however they have often led to protracted conflicts due to the ability of the opposition to alter their tactics and fight insurgency/guerrilla style warfare (Afghanistan, Iraq, Vietnam etc.) Superpower invasions usually cripple the economic, social and political structures of the country invaded, while drastically raising the debt of the country invading (The U.S. spent \$111 billion on the Vietnam war while the cost of the Iraq war is estimated at over \$3 trillion).

Wars between two tier 2 countries have been driven primarily by economic and political factors in the 20th Century (Iran-Iraq, Iraq-Kuwait & India-Pakistan), and have shown the potential to be prolonged because of the relative balance of military capability, the Iran-Iraq war for instance was the 20th century's second longest conventional war (after the second Sino-Japanese War). These wars are more likely to occur and continue during periods of bipolarity or Multipolarity, because of the vacuum in global leadership. Conflict between two tier 2 countries can be devastating because of the military capabilities of each: the Iran-Iraq war costing both sides an estimated \$1.3 trillion, while the cost to Kuwait of its invasion by Iraq was up to \$50 billion. Despite the fact that the countries involved are not superpowers there can still be significant ramifications for the global economy if those involved are major producers or suppliers of a particular commodity. For example, the Iraqi burning of Kuwaiti oil fields saw the price of oil jump by 60% in just over 10 weeks.

Magnitude 3

Since the invention of the G20 there has yet to be a regional war between a superpower and a G20 nation, highlighting the role of economic connectivity and overarching political institutions as factors minimising the probability of conflict. However, conflicts earlier in the 20th century, notably the Russo-Japanese War and the Second-Sino Japanese War have both been considered "Great Wars" with significant ramifications. While the Russo-Japanese war had limited impact in terms of casualties, around 130, 000, it saw Japan emerge as a modern nation-state while contributing to the ultimate collapse of the Tsar's regime and the eventual Russian Revolution. The Second-Sino Japanese War on the other hand was the longest conventional war of the 20th century and came at a huge human cost, 15-20 million casualties with over 90 million refugees. Structurally the war caused \$383 billion worth of property damage while also leading to \$250 million of defaults on loans (to the Farmers' Bank of China)- such damages saw China's GDP drop by \$20 billion and Japan's by \$8 billion when compared to pre-war levels. The political and ideological consequences were also significant, the erosion of support for the KMT regime in China (due to incompetence in the War) spurred the rise of Mao, while the atrocities committed by the Japanese colour tensions between the two nations today. Understanding why neither of these escalated into 'World Wars' can be in part explained by the context of the times; both occurring against a backdrop of Multipolarity, meaning

other powers were otherwise engaged or too stretched to become involved (the Second-Sino Japanese War was actually part of World War II).

The 'Cold War' can also be classified as a Magnitude 3 War, although there wasn't any direct conflict between the U.S.S.R & the U.S the ideological clash led to a fracturing of the global economy and numerous proxy wars. The majority of these proxy wars were civil wars or Magnitude 1 wars, although there were notable country invasions along ideological lines (e.g. U.S. invasion of Vietnam), which can be categorised as Magnitude 2. A proxy war between two superpowers also has the potential to escalate into a Magnitude 4 and possibly Magnitude 5 scale conflict, as evidenced by the Cuban Missile Crisis.

Magnitude 4 Wars

There were two Magnitude 4 wars in the 20th century (both World Wars), while the Crimean War in the 19th Century can also be classified as a Magnitude 4 War. These conflicts are notable because of the breadth of those involved, and the subsequent devastation they caused. World War I reversed 50 years of globalization, and is estimated to have a cost over \$337 trillion, while WWII was the deadliest war the world has ever seen, wiping out approximately 2.5% of the world's population. Post WWII globalisation, encompassing political, economic and social connections, has developed at an unprecedented rate, rendering the prospects of a future world war minimal.

Magnitude 5 Wars

To date, there have been no magnitude 5 wars. This would be the exchange of thermonuclear weapons between superpowers. The threat of nuclear war has never been greater than during the Cold War, particularly during the Cuban Missile Crisis. For a time, the principals of MAD (Mutually Assured Destruction) acted as the key defense mechanism, which prevented armed conflict between the Soviet Union and the United States.

6 Sectoral Vulnerability

War has a profound effect on the performance and makeup of a country's economy. However, we are in an era of unprecedented global connectivity. The impact of war is far more extensive than ever before. Initially there are three main categories to consider:

- Directly affected (i.e. those whose operations occur in the theatre of war)
- Indirectly affected (i.e. those who rely on resources or products from the countries involved)
- Collaterally affected (i.e. those with no connection to the countries affected but who are impacted upon through the macroeconomic changes, e.g. oil price)

Directly affected

Critical industries become targets, particularly heavy industry, shipping and any organisations involved in the manufacturing of military equipment. Bombing campaigns are more precise than they used to be, so the risk of collateral damage is significantly less than it used to be. The most detailed data of the impact of bombing on industry is from WWII, and the destruction caused during the Blitz, and the bombing raids on Dresden and Tokyo. In Tokyo, for example, 1700 tons of incendiary explosives were dropped over two days. Sixteen square miles of the city was destroyed. The main target, however, were the light industries that supported the heavy ones. Total output dropped by 50%, and it took 5-7 years to complete the rebuilding work and for strong economic growth to return. The details from Dresden are extremely detailed. 4000 tons of ordnance destroyed fifteen square miles:

- 90% of city centre was destroyed

- 23% of industrial buildings and 56% of non-residential, non-industrial buildings were 'seriously damaged'
- 78,000 dwellings 'completely destroyed'; 28,000 'uninhabitable'; 65,000 damaged but 'readily repairable'
- Destruction in old town & suburbs:
 - 12,000 houses; 24 banks; 31 stores; 600 shops; 64 warehouses; 31 hotels; 26 pubs; 63 admin buildings; 18 churches; 19 schools; 19 hospitals
- 199 factories (136 serious damage; 28 medium damage; 35 light damage)

While a modern war would include different bombs, and perhaps more precise targeting, the tactics are arguably the same. Key industrial processes have not changed. There is a dependence on people, inputs and outputs, all of which are also dependent on communication and/or transportation channels.

A second aspect to consider is the role of finance and perception. Protests in China over Japanese activities in the East China Sea sent Japanese stocks (trading in China and Hong Kong) plummeting over 5%. Even if an organisation suffers no physical damage, stock market activity can have severe repercussions.

Indirectly affected

As much as directly affected organisations and sectors can be impacted through transportation hindering the flow of resources and products, so too can the external organisations relying on such inputs and outputs.

Recently, much has been written about the subject of Contingent Business Interruption (CBI)⁴⁴ following natural disasters, like the Tohoku Earthquake and Tsunami and the Thai floods of 2011. While similar disruptions to critical infrastructure and transportation lines can occur in a conflict situation, the additional likelihood of trade embargos can hamper further the capacity of disconnected organisations, even if they occupy the third, fourth, and fifth tiers of the supply chain.

Collaterally affected

This level of impact has two dimensions. The first is the general, global macroeconomic impact, i.e. the changes in growth, trade, debt, aggregate demand, commodity prices, etc. which impact upon the economic health of a nation, and thus the organisations therein.

The second is more specific, where resources from a belligerent country are embargoed or nationalised, or in some way restricted. The resultant price change from the diminished supply (or increased demand) affects the competitiveness or profitability of the organisations that rely on the resources. Of course, there are also upsides – the restriction of one country's organisations creates an opportunity for others to fill the shortfall and increase their competitive position and national wealth.

Determining Impact

To determine the impact war might have on the broad array of organisational inputs, processes, and outputs, a series of questions can be considered to establish significance:

1. How indispensable is a particular sub-unit to the functionality of overall operations, and what implications would its loss have for them?
2. How quickly will its failure become relevant to operations?

⁴⁴ Ralph, D., Bowman, G., Coburn, A. & Ruffle, S. (2012), Resilient International Supply Chains, *Cambridge Centre for Risk Studies Working Paper Series*, (http://cambridgeriskframework.com/uploaded/documents/Resilient_International_Supply_Chains.pdf)

The criticality of each sub-unit both in relation to its centrality of function and time criticality is in itself dependent on the nature of the business sector. Agriculture will for instance have different demands than say financial services. Further to criticality we must assess the business sub-units in relation to their vulnerability to the threat of conflict, survivability attributes and recoverability options. While some business resources or units are quite protected from conflict, others are highly prone to damage in the face of warfare. These variables address the exposure profiles, fragility and reconstruction potential of the units respectively. They are an attempt to best capture the different nature of business sub-units when faced with the risk of conflict.

3. Unit vulnerability to a threat – its ability or lack thereof to avoid/mitigate the risks of conflict?
4. Unit survivability in the face of a threat – Should conflict or threat impact upon the unit, how likely is it to withstand the effects of warfare?
5. Unit recoverability – What are the timeframes, costs and challenges of rebuilding a unit after a conflict impacted the business?

Taken together a business can be thus considered methodically in terms of its risk profile. This is a function of its sub-units and their organisational criticality, supplemented by the latter three categories (vulnerability, survivability, and recovery), which look at the characteristics of the sub-units themselves to assess what makes them particularly protected/exposed to the risk of conflict.

Criticality can be considered along a continuum from 'Severe', where the unit is integral to the organisation, and loss will halt operations and/or lead to cascade failures within the business system, to 'Negligible', where the unit is ancillary to core operations and processes and loss will not arrest core business functions nor hamper them.

Timeframe can be assessed through consideration of the time it takes for the loss of a unit to disrupt the organisation. Intervals of 'immediate', one, three, seven and 21 days should provide enough scope to allow disruption to occur, and help plan mitigation techniques.

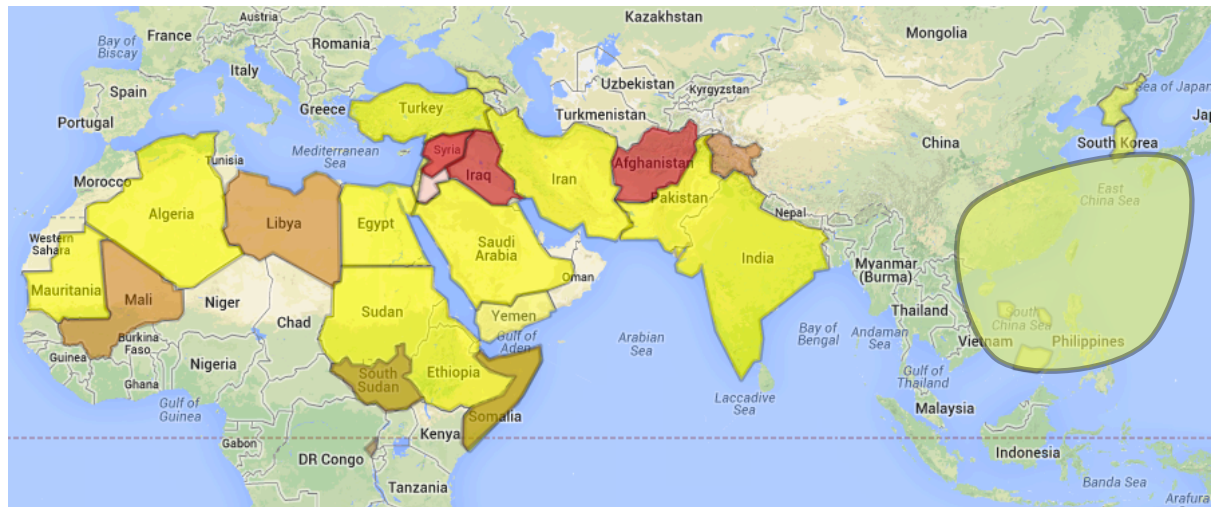
Vulnerability, like criticality, can also be considered along a continuum from 'Severe', where the unit is highly exposed to the risk and has little capacity to avoid or mitigate the threat, to 'Negligible', where the unit has the capability to avoid or address the risk.


Similarly, survivability can also be ranked from 'Severe', where the unit would be destroyed completely or rendered inoperable, to 'Negligible', where occurrence of risk will not restrict unit effectiveness.


Recoverability can be assessed using a different continuum, from 'Simple', functionality can be restored quickly and without excessive cost, to 'Prohibitive', where restoring operations is inhibited by technical expertise, cost, or unforeseen, uncontrollable disruptions.


7 Geography of hazard

7.1 Likelihood of conflict



 Low probability of conflict

 Existing conflict or high probability of conflict

 Medium probability of conflict

North Africa & the Middle East

This continues to be a hotspot for inter-state conflict, largely fuelled by a) U.S. intervention in the region to protect security interests and b) sectarian divisions that have become more pronounced in the wake of the Arab Spring which have shown the potential to flare into wider conflicts, e.g. the West's intervention in Libya and Syria's continual turmoil drawing in outside actors such as Hezbollah. While the shockwaves from the Arab Spring continue to cause uncertainty in the region, future prospects of U.S. intervention are somewhat curtailed by the protracted nature of their engagements in Afghanistan and Iraq. However, escalation involving Iran and/or Israel would likely see the U.S. as well as potentially Saudi Arabia and Turkey become involved.

Sub-Saharan Africa

The spread of Al-Qaida affiliated Jihadist groups into Western Africa and the Sahel has already led to French intervention in Mali which may set a precedent as European states attempt to re-establish stability amongst regimes threatened by increasingly aggressive jihadist groups, who have limited capacity to contain the threat themselves. Continued instability in Somalia is likely to see a continuation of tensions with its neighbours, notably Eritrea and Ethiopia, while South Sudan's recent independence coupled with continued disputes over territory and resources with the North might lead to a reigniting of conflict. Parts of Eastern Congo continue to show propensity for wider scale conflict due to the involvement of Rwandan and Burundi rebel groups.

Indian sub-continent

Continued tensions persist between India and Pakistan, which may be heightened due to instability within Pakistan, with the central Government struggling to curtail the rise of radical Jihadist groups,

and subsequent terrorist attacks in India. Skirmishes are likely to continue in the disputed Kashmir region.

East Asia

New leadership in North Korea poses a new security threat in the region and tensions periodically escalate with the South. Continued disputes over islands in the South China Sea create the possibility of conflict in the region.

7.2 Potential for high magnitude



North Africa & the Middle East

Instability in North Africa could have the potential to draw in a superpower, although this would likely be on a limited scale, similar to the West’s intervention in Libya. The Middle East however has the potential to see a conflict escalate drastically, especially if either Israel or Iran was involved, which would trigger U.S. intervention as well as potentially the involvement of Russia and Turkey. This could potentially occur via a deterioration of the situation in Syria or through a continued decline in relations between Israel and Iran. Increased instability in Yemen increases the possibility of outside intervention, although this would be less likely to flare into a conflict above Magnitude 2.

Sub-Saharan Africa

While European intervention has occurred in Mali, the majority of conflicts are likely to remain fairly local in character without wider regional conflagration.

Indian sub-continent

Any conflict between India and Pakistan is likely to stay at a Magnitude of 2, due to a lack of outside actors who would become involved, and the likelihood of both sides bending to the pressure of the international community.

East Asia

North Korea's intransigence coupled with its desire to ascertain nuclear weapons in the face of U.S. driven international condemnation means any conflict it is involved in could escalate to a Magnitude 3 conflict.

Tensions continue to simmer between Japan and China over disputed islands. The historical animosity, which colours the relations between the two states, means the possibility of conflict cannot be ruled out. Because of the power of both, any conflict would have the potential to spiral into something approaching a Magnitude 3 or even Magnitude 4 conflict.

8 Scenario Specification

Sino-Japanese Conflict in the East China Sea

Background

There are many disputed islands between China and Japan (for example, Longjing/Asunaro, Tianwaitian/Kashi, Duanqiao/Kusunoki, etc.). The most well known are the Diaoyu/Senkaku Islands, equidistant from Taipei and Ishigaki (170km). Since the discovery of oil and other natural resources in 1968, both China and Japan's claim the islands lie within their Exclusive Economic Zone (EEZ)⁴⁵.

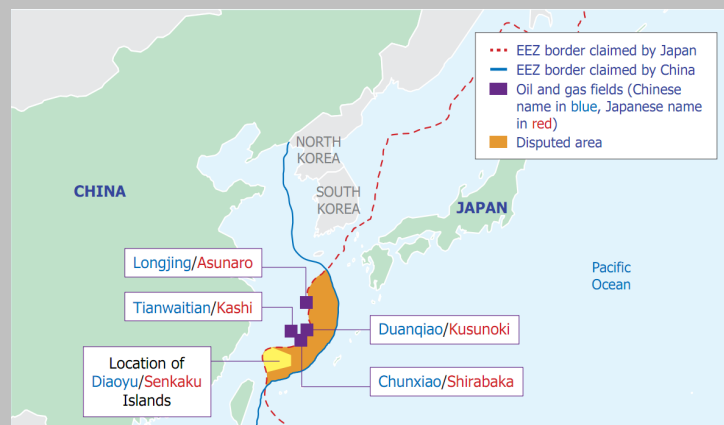


Figure 24: Disputed islands in the East China Sea⁴⁶

Recently, these islands have grown in importance and strategic significance, both militarily (for coastal defence) and economically (as key trading and shipping routes and fishing areas, as well as increasing in value as the cost of natural resources has increased significantly). Aside from their importance to China and Japan, their proximity to Taiwan and position in the East China Sea puts them directly in the main shipping routes from the South China Sea to South Korea and Tianjin.

⁴⁵ The EEZ is a seazone prescribed by the UN giving states special rights over exploration and use of marine resources within a 200 nautical mile border from the coastline.

⁴⁶ U.S. Energy Information Administration – East China Sea (<http://www.eia.gov/countries/regions-topics.cfm?fips=ECS>)

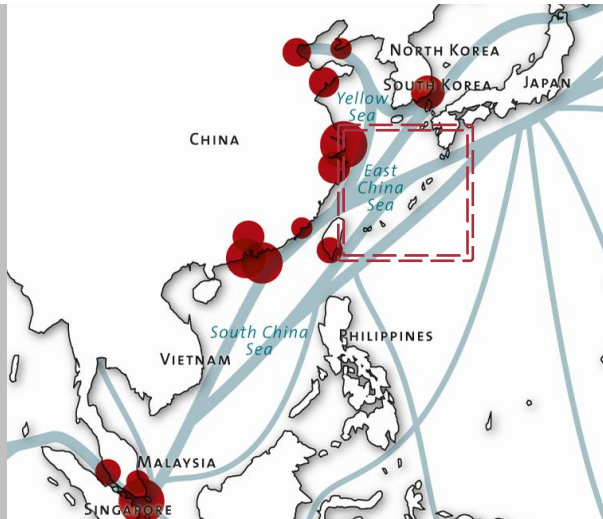


Figure 25: Main shipping lanes in East Asia⁴⁷

Phase 1: Escalating Tensions

Naval manoeuvres, large-scale war-games, and diplomatic posturing have defined recent tensions. Set against a backdrop of military modernisation (particularly, PLAN - the People’s Liberation Army Navy), increased Chinese nationalism, the legacy of conflict (the Sino-Japanese war) and an extreme thirst for natural resources (particularly for Japan, who are bereft of natural resources), China and Japan have continued to clash over the islands. As Japan imports 90% of its energy, it is eager to maintain an open and free flow of maritime trade⁴⁸ but despite bilateral trade reaching \$345 billion, China is pursuing a more assertive position, fuelled by nationalism and a rise in anti-Japanese sentiment. Japan nationalised three of the disputed islands in September 2012. Since then, China has increased the frequency and scale of incursions and tensions have reached their highest level since the end of World War II.

December 13th 2012	Chinese reconnaissance aircraft entered Japanese (undetected) airspace above the islands. Japan scrambled fighter jets from Okinawa (400km away) but failed to intercept.
January 30th 2013	A Chinese frigate locked its firing radar on a Japanese destroyer. China denied the incident, leading to speculation that the frigate’s captain was acting without orders from Beijing.

Figure 26: Direct involvement between Chinese and Japanese military⁴⁹

The Japanese military are concerned that the situation in the East China Sea will emulate similar conflicts and disputes in the South China Sea, where the Chinese PLAN attacked Vietnamese oil exploration ships and fishing vessels over proximity to the Spratly Islands⁵⁰. There is also a significant concern that the prospect of conflict could increase the possibility of accidental military

⁴⁷ UNCTAD Review of Maritime Transport 2012, Hofstra University Department of Global Studies & Geography (ETH Zurich, Center for Security Studies)

⁴⁸ Storey, Ian. “Japan’s Growing Angst over the South China Sea”, ISEAS Perspective, Institute of Southeast Asian Studies, Singapore

⁴⁹ Smith, Sheila A. “A Sino-Japanese Clash in the East China Sea”, Contingency Planning Memorandum No.18, Council on Foreign Relations.

⁵⁰ Storey, Ian. “Japan’s Growing Angst over the South China Sea”, ISEAS Perspective, Institute of Southeast Asian Studies, Singapore

incidents (e.g. a US reconnaissance plane collided with a Chinese fighter jet near Hainan Island in 2001), particularly if civilian vessels stray off course and are targeted by naval forces.

This is exactly what happened after a Japanese fishing vessel was fired upon after straying into Chinese waters. Although the crew of the damaged boat returned safely, angry diplomatic exchanges flowed from the highest levels of both governments. Japan acknowledged the error of the fishing boat and said they would be rectifying the situation immediately⁵¹. They deployed naval engineers to install a radar station on the disputed islands that would 'allow ships and boats clearer navigation through the area'. The Chinese government and media reacted angrily to the news, stating that the objective of 'preventing marine accidents' was a thinly veiled attempt to disguise an egregious, unlawful and dangerous attempt to claim sovereignty over the islands.

Phase 2: Diplomacy & Preparation for War (8 days)

Stocks tied to Japanese businesses suffered heavy losses on Chinese stock markets as tensions increased amid uncertainty over the Chinese response. Although expected to call for a UN Security Council meeting, the Chinese government instead issued a public statement of its communication with Tokyo. The statement called for Japan to remove immediately the radar and any and all personnel within 72 hours. Failure to do so, the statement continued, would be considered an unacceptable act of aggression against Chinese sovereignty. Despite international calls for calm and volatility in global stock markets, Japan refused to remove the radar equipment, reiterating their 'honest and responsible intent to protect all in the East China Sea'.

After 24 hours, China ordered an immediate cessation of all trade import agreements with Japan until the dispute was resolved and issued a travel advisory warning for all citizens not to travel to Japan. The United States and several EU nations urged for calm. The Dow Jones and FTSE100 were among many global markets that suffered losses on fear of a conflict. China responded powerfully, stating domestic security is their responsibility and the United States, of all countries, should know the value of protecting islands of such proximity. The statement coincided with an announcement of a war-game exercise in the East China Sea with forces from both the North and East Sea Fleet. Japanese ships monitor the exercises but there is no engagement between forces.



Figure 27: Chinese Naval war-games in East China Sea⁵²

⁵¹ "Senkaku air intrusion prompts radar upgrade", December 15 2010, Japan Times, <http://www.japantimes.co.jp/news/2012/12/15/national/senkaku-air-intrusion-prompts-radar-upgrade/#.Ugz9oxapBY1>

⁵² Cole, J. M. "PLA sorties threaten encirclement", Taipei Times, February 9 2012

The world waited anxiously for the deadline. Rumours of negotiations excited the press but it was the sudden and conspicuously coordinated departure of all non-essential personnel from the Chinese embassies and consulates in Tokyo, Osaka, Sapporo, Fukuoka and Nagasaki that created fear of what was to come.

Phase 3: Acts of War (11 days)

Exactly 72 hours after the ultimatum was given, a Chinese People's Liberation Army Navy (PLAN) *Lanzhou*-class destroyer launched a C-602 cruise missile against the radar installation on the disputed islands. The missile destroyed the radar along with a naval transportation unit, killing 18 members of Japan's Maritime Self-Defense Force (JMSDF). The West condemned the missile attack with the US, UK and France calling an urgent meeting of the UN Security Council.

Japan's government reiterated their commitment to peace and an open and free sea. However, they also stated that the Chinese attack on Senkaku was as much an act of war against Japan than as if they had bombed Tokyo itself. They would respond, properly and quickly. Stock markets continue to plummet as fear of real war set in, with commodity prices, particularly oil, increasing significantly. The following evening two Mitsubishi F-2 fighter planes took off from Tsuiki Air Base in Fukuoka, armed with ASM-2 anti-ship missiles. They targeted the destroyer responsible for the attack on Senkaku, penetrating its hull and disabling it in open water. China said that 37 sailors were killed in the attack, with the destroyer damaged beyond repair.

Protestors took to the streets in China opposing Japan's attacks. Condemnation too came from the wider international community. Japan argued proportionality reminding the world that the Senkaku/Diaoyu Islands are theirs, and that China bombed them. China launched a full blockade of Japanese vessels travelling through the Taiwan Strait and South China Sea, while promising safe passage for all non-Japan bound ships; they also closed their airspace to planes coming too or from Japan. Japan reacted similarly, restricting movement of Chinese ships and planes. To prevent any attempt on the part of JMSDF to access the islands, Chinese PLAN enacted a familiar mine warfare strategy to block access. The PLAN could still navigate the sea and guided passing ships through the mined waters.

Phase 4: Collateral Damage (12 days)

Although the Chinese are familiar with strategic mine defence, one of the devices, a Mao-4 Moored mine, broke its mooring and drifted into open water. It struck a large container ship travelling from Busan, South Korea, to Singapore. The hull was badly damaged with hundreds of the TEUs (twenty-foot equivalent units) spilling into the sea. The security of the area prevented a speedy recovery operation. The crew all survived, but the \$200m Ultra Large Container Vessel sank along with her 15,000 TEUs of cargo⁵³. Japan called it another act of mindless aggression, while China blamed a Japanese submarine attack for the disaster. Tensions rose further as both sides expected a response from the other.

Amidst the chaos and confusion of war, another civilian disaster occurred. Japanese Air Self-Defense Force (JASDF) detected a high-altitude bomber approaching Japan. After an initial warning the plane crossed into Japanese airspace. The Type 81 surface-to-air missile launched and shot down the plane. Within hours news began to filter through that a 747-400 heading from Beijing to Sydney dropped off the radar over the East China Sea⁵⁴. Wreckage was found indicating the downing of the civilian

⁵³ http://www.maerskfleet.com/#vessels/Maersk_Line/Emma_Maersk

⁵⁴ Similar instances include flight KAL 007, shot down in 1983, and Iran Air flight 665, shot down in 1988

plane, carrying 400 passengers. Aside from the emotional cost, early insurance estimates suggested the disaster could cost between \$500 million and \$1 billion⁵⁵.

The Chinese government claimed a Japanese attack on its citizens, while the Japanese blamed the Chinese military for letting a passenger jet encroach the strict no-fly zone. Japanese media speculated that it was a deliberate attempt on the part of the Chinese to attain stark *casus belli*. Western forces reacted with the United States, India and Australia creating a total blockade of the East China Sea. Ships travelling from Japan were forced to travel south of the Philippines, increasing journey times by over 30%. South Korea trade routes with Asia and Europe were also severely affected, however, as it was summer, trade with Europe suffered less, as they were able to use Arctic-shipping lanes and actually reduce shipping times by almost one week⁵⁷. China's imports and exports were perhaps hit hardest. Their cross-Pacific journeys were rendered almost impossible, severely hampering trade and diplomatic relations with the United States.

Chinese citizens took the streets in protest. Although protests became more generally anti-West, with US businesses and embassies targeted, there was an increase of, and violent twist to, anti-Japanese protests. Japanese business were ransacked and burned, and commercial icons destroyed on the street. In the most extreme case, a Japanese business was targeted, with protestors storming the factory, and beating and killing the Japanese manager who attempted to quell the crowd. Dozens more were taken hostage by protestors who demanded the immediate cessation of Japanese claims on the disputed islands.

Phase 5: Escalation of War (12 days)

After protestors executed one of the Japanese managers, Japan ordered its Special Forces Group to rescue the hostages. A small team of soldiers made the incursion under the cover of nightfall. They located the building without detection and were able to free the hostages, killing several protestors in the process before escaping by sea. Japan denied the assault, as did China, who was unwilling to admit to the embarrassing breakdown of their defences.

Tensions remained high for a couple of days before a video, taken on a smart phone, surfaced of the Japanese soldiers executing the raid and exchanging gunfire with protestors. China had no choice but to acknowledge the 'invasion', promising a swift and definitive response. Their attack had two-stages. First there was a direct attack on Japan, and second an invasion and conquest of the disputed islands. An early morning cruise missile strike struck and destroyed the Futtsu Power station⁵⁸, near Tokyo, the second largest gas power station in the world and key provider of energy to the Keihin and Keiyo Industrial Zones, which form the largest industrial region in Japan⁵⁹. Hundreds of workers are estimated to have died in the blast and the subsequent fire. The attack also cripples Japan's industrial sector and their war making capacity. Power shortages restrict industry to three-day weeks as the wind down of their nuclear plants has left the country short of energy.

Trading was suspended on all global stock markets as fear of world war and possible nuclear exchange set in. Panic struck Japan as people began to evacuate the major cities. Many foreign nationals had already left but those who remained struggled to find ways to exit the country. A full diplomatic effort was launched to remove citizens from both China and Japan. Foreign governments ran flights constantly to India, Singapore and Australia as fear of escalation spread.

⁵⁵ Frye, Andrew, "Air France Crash May Be Most Expensive Since 2001 (Update1)", Bloomberg, June 10 2009, <http://www.bloomberg.com/apps/news?pid=newsarchive&sid=arLJ560WUeSk>

⁵⁶ <http://www.boeing.com/boeing/commercial/prices/>

⁵⁷ Limb, Jae-Un, *Korea gains permanent observer status on Arctic Council*, May 21 2013, <http://www.korea.net/NewsFocus/Policies/view?articleId=108026>

⁵⁸ See <http://www.tepco.co.jp/en/corpinfo/overview/pdf-4/46-e.pdf>

⁵⁹ Ministry of Foreign Affairs, Japan (<http://web-japan.org/factsheet/en/pdf/02RegionsofJap.pdf>)

The second stage was the full invasion of the Dioyu/Senkaku Islands. Naval forces created a protective border for landing craft to board the islands and begin setting up defensive surface-to-air and surface-to-sea missiles. Japan promised to respond to the fullest extent of its military capability.

Phase 6: Global Intervention (25 days)

The bombing of Honshu's key power station was a crushing body blow for Japan. But it also called the world to attention. All the pieces were in place for a long, intensive conflict, between two countries with extreme national conviction and unimaginable destructive power. Failure to act would result in outright war; there was no alternative for the Western world, and in particular the United States, but to intervene⁶⁰. The United States acted first, urging Japan not to retaliate for the Futtsu attack, but declaring unequivocally that they would defend Japan as per the agreement stated in the recent Joint Resolution (passed by the US Congress). The US began moving their Pacific fleet and South China Sea fleet into position. With rest of the 'democratic security diamond', Australia and India, as well as the UK, France, Germany, and regional actors, Vietnam and the Philippines, the United States declared that any further attack against Japan will be countered with the full might of the American military and that of its allies.

Perhaps most significantly, Russia too demanded calm and also stated that while they support China as allies, they will not come to the aid of any country who is attacked, and that they would assist the United States and its allies in their attempts to resolve the situation. The United States, with Russia as a partner and stand down supervisory force, ordered an immediate ceasefire, the removal of the weapons on the disputed islands, and the opportunity for both nations to address the UN on the issue of each country's Exclusive Economic Zone (EEZ).

Phase 7: Aftermath

China agreed to the conditions that any attack (or incursion) by Japan would void all agreements, and that Pacific and South China Sea shipping lanes would be opened as soon as possible so trade with the United States and Canada could begin again. Japan also agreed to the ceasefire and to the United States and Russia's role in negotiating trade relations with China, and restoring most of the \$345 billion agreement. The free flow of shipping routes returned within a month, causing an increase in global stock markets as some normality returned. It required a large presence and deployment of US Naval forces, at significant cost to their economy. Commodity prices too began to drop within hours of the agreement.

⁶⁰ Jeong, Hunny, "Australian Professor Predicts War in the East China Sea", The International, February 16 2013, <http://www.theinternational.org/articles/344-australian-professor-predicts-war-in-east>

9 Bibliography

- Acemoglu, Daron. Golosov, Mikhail. Tsyvinski, Aleh & Yared, Pierre. "A Dynamic Theory of Resource Wars", *The Quarterly Journal of Economics* 127(1) (2012): pp. 283-331.
- Anderton, Charles & Carter, John. "The impact of war on trade: An interrupted times-series study". *Journal of Peace Research* 38(4) (2001): pp. 445-457.
- Askari, H, Mohseni, A & Daneshvar, S. *The Militarization of the Persian Gulf: An Economic Analysis*. Edward Elgar Publishing, 2009.
- Barnett, M.N. *Confronting the Costs of War: Military Power, State, and Society in Egypt and Israel*, Princeton University Press , 1992.
- Barvarz, F. *Islamic Atomic Bomb Cookbook*. Trafford Publishing, BC, Canada, 2010.
- Brecher, M. & Wilkenfeld, J. *A Study of Crisis*. University of Michigan Press, 1997.
- Caselli , Francesco "The Geography of Inter-State Resource Wars", *Society for Economic Dynamics 2012 Meeting Papers* 1174 (2012): pp.1-39.
- Cederman, Lars-Erik. "Endogenizing geopolitical boundaries with agent-based modelling", *Proceeding of the National Academy of Sciences of the United States of America* 99 (3) (2002): pp. 7296-7303.
- Chinese Ministry of Information, *China Handbook 1937-1945*, MacMillan, New York, 1947.
- Clodfelter, Michael. *Warfare and Armed Conflicts- A Statistical Reference to Casualty and Other Figures*. McFarland & Co, 2002.
- Dunstan, S. *The Yom Kippur War 1973 (Part 2): The Sinai*, Osprey Publishing Limited, 2003.
- Fearon, James. "Rationalist Explanations for War," *International Organization* 49(3) 1995): pp. 379-414.
- Fenrick W.J. "Targeting and Proportionality during the NATO Bombing Campaign against Yugoslavia" *EJIL* 12 No. 3 (2001): pp. 489-502.
- Fukuyama ,Francis. "The End of History?", *The National Interest* (1989): pp. 3-18.
- Gartzke, Eric and Weisiger, Alex. "Development, Democracy, and Difference as Determinants of the Systemic Liberal Peace", *International Studies Quarterly* (2013).
- Gartzke, Eric and Weisiger, Alex. "Permanent Friends? Dynamic difference and the democratic peace", *International Studies Quarterly* 57 (1) (2013): pp. 171-85.
- Glick, Reuven & Taylor, Alan. "Collateral Damage: Trade Disruption and the Economic Impact of War". *The Review of Economics and Statistics, MIT Press* 91 (1)(2005): pp.102-27.
- Gudolin , Massimo. "The economic effects of violent conflict: evidence from asset market reactions" *Journal of Peace Research* 47(6) (2005): pp. 671-684.
- Hattis Rolef. *The Domestic Fallout of the Yom Kippur war* in *Revisiting the Yom Kippur War* edited by P.R. Kumaraswamy. Frank Cass Publishers, 2000.
- Horowitz, Horowitz. "Long Time Going: Religion and the duration of crusading", *International Security* 34 (2) (2009): pp. 162-193.
- Huntington, Samuel. "The Clash of Civilizations?", *Foreign Affairs* 72 (3) (1973): pp. 22-48.
- Harris, G. *The costs of armed conflict in developing countries*, In ' *Recovery from Armed Conflict in Developing Countries*' Edited by Harris G, Routledge, London, 1999.

Horowitz, S. "Reversing Globalization: Trade Policy Consequences of World War I", *European Journal of International Relations*, 10(1) (2004) pp. 33-59.

Institute for Economics & Peace, *Economic Consequences of War on the U.S. Economy*, <http://www.thereformedbroker.com/wp-content/uploads/2012/02/Economic-Consequences-of-War.pdf>

Johnson, Neil et al. "Universal Patterns Underlying Ongoing Wars and Terrorism", *Working Paper, University of Miami* (2006).

Karsh, E. *The Iran-Iraq War 1980-1988*. Osprey Publishing, Oxford, 2002.

Marshall, M. Measuring the societal impact of war. In: Hampson FO, Malone D, editors. *From reaction to conflict prevention: opportunities for the UN system*. Boulder, CO: Lynne Rienner, International Peace Academy; 2001. pp. 63-104.

Miyajima, H. "Japanese Industrial Policy during the Interwar Period: Strategies for International and Domestic Competition." *Business and Economic History, Second Series, Volume 21* (2001): pp. 270-79.

Mofdid, K. *Economic Consequences of the Gulf War*. Routledge, NY, USA, 1990.

National Intelligence Council, *Global Trends 2030: Alternate Worlds*, <http://globaltrends2030.files.wordpress.com/2012/11/global-trends-2030-november2012.pdf>

O'Neil, W.D, *Interwar U.S. and Japanese National Product and Defence Expenditure*, CNA Corporation. 2003.

Paine, S.C.M. *The Wars for Asia: 1911-1949*. Cambridge University Press, 2012.

Picciotto, R. Clarke, M & Olonisakin, U. *Global Development and Human Security*. Transaction Publishers NJ, USA, 2007/2010.

Quan, Li and Reuveny, R.. "Trading for Peace/ Disaggregated Bilateral Trade and Interstate Military Conflict Initiation", *Journal of Peace Research* (2012).

Richardson, Lewis F. *Statistics of Deadly Quarrels*. Chicago: Quadrangle Books, 1960.

Rivlin, P. *The Israeli Economy from the Foundation of the State through the 21st Century*. Cambridge University Press, 2001.

Shalev, A. *Israel's Intelligence Assessment Before the Yom Kippur War*. Sussex Academic Press, 2010.

Wallenstein, Peter. "Incompatibility, Confrontation and War: Four models and three historical systems, 1816-1976", *Journal of Peace Research* 18 (1) (1981): pp. 57-90.

Wayman, Frank. "Bipolarity and War: The role of capability concentration and alliance patterns among major powers, 1816-1965", *Journal of Peace Research* 21(1) (1973): pp.61-78.